

PT7 cuts costs

FERRANTI Computer Systems

Computer Weekly

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IBM profits hit a record \$4.4bn

by Kevin Pearson
IBM has posted record results and profits of over \$4 billion. The company showed major improvements in both sales and profit performance. Net profits for the year jumped 22% to just over \$4.4 billion, and sales rose from \$29 billion in 1981 to almost \$34.4 billion. The results confounded Wall Street analysts who last year predicted that IBM would not breach the \$34 billion sales barrier. However, the analysts are quick to point out that the company's results would not have looked so good had IBM not adopted the latest foreign currency translation accounting standards. The company estimates that the new standard added \$449 million to net profit in 1982 over what would have been recorded under the old standard. Recalculating

1981 performance on the same basis, profits would have been up by just over \$300 million. Fourth quarter results took profits to \$1.5 billion on sales of over \$11 billion, both quarterly records. The breakdown of IBM's sales increase of 18.2% reflects some interesting changes in the company's business activities. Gross income from sales rose by 30.3%, while revenues from its rental operations rose by only 2.6%, reflecting the company's switch in business emphasis from rentals to outright sales. Over the last year or so IBM has consistently cut the prices of most of its products in real terms, despite frequent price rises, while at the same time increasing its rental charges. Revenues from other services rose by 20.6% giving an average of

18.2% overall. This performance compares with a very flat set of results over the last four years, where investments and product development costs have kept net profit margins very flat. But with US inflation varying from about five per cent now to 10% at the start of 1982 IBM's 22% profit rise looks very good. And the company is at the start of a very strong product cycle with its 3080 large systems and the 3380 disc products. Chief executive John Opel says that shipments of both these product ranges are very strong. But while Opel was ebullient over the results, he added that if currency rates had remained at constant 1981 levels then 1982's sales would have been \$1.8 billion higher than reported, and profits would have hit \$4.7 billion.



CRAY... His machines will design British armaments.

NatSemi pulls out of State firm

by Jack Gee and Kevin Pearson
NATIONAL Semiconductor has withdrawn under pressure from the French government from a joint venture with industry to make computer components, leaving Motorola and Intel still in similar partnerships. Government-controlled son-CSF paid the symbolic FF1 - about 10p - for NatSemi's 49% stake in Eurotechnique. Nationalised Saint Gobain received FF51 million from son for its 51% share.

Motorola remains in its partnership with Thomson and Harris and Intel continues its ties with Matra, also owned by the French government. The other French companies making any size in Radioelectricite, a subsidiary of Philips. The new arrangement at that Thomson and Matra own France's modest computer industry. Both have yet to say they can make a substantial contribution to the ambitious national economic plan in the government is now pushing finishing touches. Eurotechnique's turnover is low FF100 million. Thomson have to pay heavy royalties to continue using NatSemi patents. Bob Heikes, NatSemi's European president said that the firm had been reached "goodwill on both sides". He added "We have not technology payments due to us. We will continue to receive help from the technology we have" to Eurotechnique.

Eurotechnique has been long memories and microprocessors with a staff of 455 employees the past two years. The investment is expected to run to tens of millions of pounds over the next five years.

Up to 300 jobs in developing office automation software

DEC puts faith in UK with a £7m centre

by John Kavanagh
THE UK has been picked by the microcomputer giant Digital Equipment for its first research and development centre outside the US. Up to 300 jobs will be created in the next four years at the £7 million centre, which will develop office automation software for the worldwide markets.



LAMONT... "Shortage of skills".

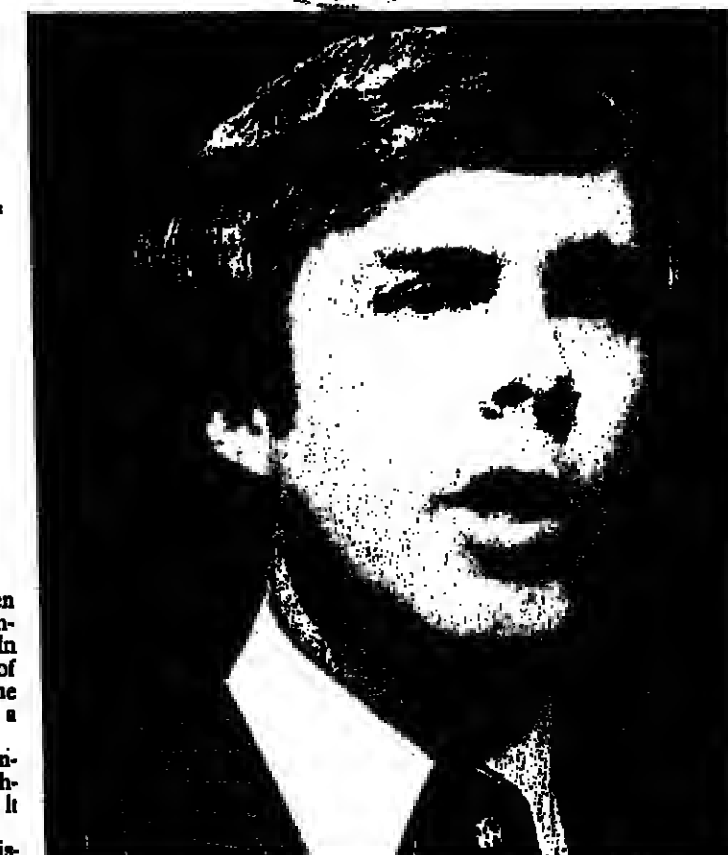
The centre is being built near DEC's UK headquarters in Reading, where the company has 120 software staff who have recently started to specialise in office automation and communications. But this latest move will increase competition for scarce computing professionals and graduates - at a time when the government is cutting back on university spending (see back page). "Office automation and personal computers are the two areas of key importance to our company, and the Reading centre will make a key contribution," said Darryl Barbe, managing director of DEC in the UK. "We are looking forward to becoming a leading supplier of office automation based on British investment and British expertise."

Barbe said the UK had been chosen because UK software technology was as good as anywhere in the world and the right sort of people were readily available. The existing staff in Reading had a proven track record. And Barbe praised the government's attitude to office technology and the encouragement it had given the company. Both Barbe and Industry Minister Norman Lamont refused to comment on whether the investment involved public money. Lamont said DEC's move was "proof of the high level of technical excellence that exists in Britain". He added that it also confirmed the government's view that the climate was ripe for investment. Lamont said "quite a number" of the centre's staff would be recruited directly from universities and colleges. "There is certainly a shortage of skills and the government's thrust in this area is to encourage companies into training."

Govt holds down BT prices

by Donald Kennett
PRICE increases on most of British Telecom's services will be kept below inflation for at least five years once its shares are sold to private investors. The government said this week that it would insist on this interim measure to ensure consumers and small businesses are protected against possible abuse by BT of its dominant position. After five years, increased competitive pressures resulting from a package of changes announced in Parliament on Monday are expected to control BT's activities. The measures, announced by Information Technology Minister Kenneth Baker, include the removal of BT's monopoly supply of the

first telephone on any exchange line and on maintenance of new private exchanges greater freedom in international connections for BT's rival Mercury, and the freedom to resell capacity on private leased circuits on terms to be negotiated with BT. Baker also said that competing public networks such as Mercury, the two cellular radio telephone services, and possibly an additional privately-run satellite network should pay access fees to BT in return for the right to connect to its local networks. BT's own trunk network division would have to pay the same fees, which should not discriminate according to how much competition there was on a particular route, but which could be volume-related. The fees would cover the costs of loss-making emergency and call-box services and would be a highly desirable alternative to public subsidy, he said. The changes are the result of a report on how to limit the ill-effects of BT's dominant position that the Department of Industry commissioned from Professor Stephen Littlechild of Birmingham University in October. The government accepts his basic conclusion that competition is by far the most effective protection against the exercise of monopoly power and agrees with his rejection of three reports on the subject that the DoI had commissioned previously.



BARBE... "UK software technology as good as anywhere".

IBM pressured to replace System 34

by Kevin Pearson
IBM is coming under increasing pressure from rival manufacturers to replace its ageing System 34. Wang, one of the leading office automation companies, has announced the first UK success of its concerted marketing drive to get System 34 users to move to its VS series rather than to IBM's own System 38. And Sperry Univac has launched a series of conversion aids to assist users to move from System 34 to its System 80 - and the aids are free of charge to users.

Late in 1982 Wang began a substantial marketing campaign with advertisements and seminars aimed at converting IBM users to the Wang data processing fold. The campaign has now reaped its first UK success with BMM Weston, a Kent-based heavy engineering concern. The order is worth £117,000, and it replaces an IBM System 34 with a Wang VS 90. Installation is planned for the second quarter. BMM's DP manager, Gerry Kelly, explained that while the price of System 38 was roughly comparable with that of the VS system, the latter out-performed

Four micros from ICL this week

ICL is to introduce four new microcomputers this week. The machines are based on the Intel 8085 chip, which is an 8-bit processor, although ICL says there will be a 16-bit option with it. The machines are all designed and supplied within the terms of ICL's existing design contract with Rair, although ICL is likely to build the machines in the company's own plants, rather than subcontract via Rair.

Cheapest telex

A SURVEY of international telecommunications charges run by the Observer and tariff analysts National Utility Services has shown British Telecom to be by far the cheapest for telex calls - cheaper than most on international and trunk telephone calls but most expensive on local telephone calls.

Video protest

BRITISH Telecom Unions Council has denounced a management video on the privatisation of BT as "politicised propaganda". The video is being shown to BT staff during work time and the council has called on its members to refuse to watch it unless one of the union videos is shown at the same time. Bryan Stanley, the general secretary of the Post Office Engineering Union, objected strongly to the lack of consultation in the making and showing of the video.

'Live' magazine

MICRONET 800, the viewdata magazine for micro users, is to go live at the end of this month, when the first models in the range of £50 adapters become available. It will cost £5 a quarter to subscribe but computer time will be free during off-peak hours. The target is to attract 100,000 users.

Delay loses ICL two major orders

by Andrew Thomas
ICL's delay in making its Content Addressable Filestore (CAFS) available under the VMS operating system has cost the company two major orders from the BBC. The broadcasting authority runs ICL 2900 mainframes, and is in the process of installing new 2988 processors, but IBM and Datapoint have benefited from ICL's inability to deliver. The new BBC World Reporter service, a 41 gigabyte database containing news stories from around the world and intended for use by journalists, has been set up on Datapoint's IBM 3081 at Sunbury on Thames, and the BBC has just installed a computerised telephone directory enquiry system based on Datapoint hardware. Bob McLean, head of computer services at the BBC, says that he would have liked to have used CAFS for the system, but ICL

could not supply the requisite hardware. "At the time we were designing World Reporter, about three years ago," he says, "only CAFS 800 was available, and that only ran under the old 1900 emulator, DME. "I'm committed to running a VME-only service, so although CAFS was the best system to do the job, we had to go with the Status system from the UK Atomic Energy establishment at Harwell. I don't think we'll have CAFS until 1984 at the earliest." Datapoint has won an order for a 33-screen local area network based on its AIM software, and McLean sees this as another indictment of ICL's marketing strategy. ICL plans to commence deliveries of its CAFS ISP information server in the summer.

Magnuson investigation

MAGNUSON Computer Systems is under investigation by the US Securities and Exchange Commission, which oversees the stock markets, as the firm's troubles continue to mount. The exact nature of the investigation is unknown, although Magnuson employees have reportedly been asked to provide information to the Commission. The company recently announced that it had ceased work on a next-generation IBM-compatible system.

Govt buys sixth Cray

by Kevin Cahill
THE UK will shortly acquire its sixth "official" Cray 1S supercomputer when the Ministry of Defence takes delivery of a machine in March. The Cray 1S is the fastest scientific computer in the world, processing floating point instructions at a rate of 20 to 140 megaflops, roughly equivalent to a MIPS rating of 200. The machine complete costs between £5 million and £10 million. The UK system will be delivered to the Royal Armaments Research Establishment at Portsmouth, where it will be used to help design primarily conventional armaments. Fort Halstead is part of the procurement division of the Ministry of Defence. The RARE machine is the second Cray in the UK military system. The other "official" machine is at the Atomic Weapons Research Establishment at Aldermaston. There are unconfirmed rumours of a third Cray at the Government Communications Headquarters at Cheltenham, otherwise known as "the Spy HQ".

DEC dealers press for better information

by John Kavanagh
DIGITAL Equipment distributors are getting together to press the US manufacturer for more information on its product plans. The 10 "official" UK distributors meet at top management level, and DEC is taking the group seriously, sending "very senior" people to the meetings. "It is important for us to have an idea of DEC's long-term plans," said Brian Andrews, managing director of Applied Computer Systems, one of the group. "It is difficult to get information from the company, but as a group we have applied pressure quite successfully." DEC has taken the authorised computer distributor programme very seriously. It has heavy strict rules for the distributors in terms of how they run their businesses, so it is important that DEC reciprocates with information.

Andrews said the group had an amicable relationship with DEC. Group members also swap ideas and even exchange sales leads. "My company has never been in competition with any other distributor," he said. "That has something to do with the way DEC has set up the programme." DEC said it was "very happy" with the formation of the group, which it saw as a positive step which should improve contact

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LINE NOISE

ICL is paying the price for announcing a product 15 months early. University users of its £20,000 Perq personal computer are complaining that their machines are gathering dust while they wait for ICL and the Science and Engineering Research Council to produce the Unix-like operating system, PNK, promised when the Perq was launched in 1981. Some are waiting for PNK rather than programming under the Perq's Pos system and then having to convert. PNK is on trial at some sites, four months late. The good news is that users say the machine is first-rate. And the US firm which designed it, Three Rivers Computer Company, could sell PNK in the US for ICL.

The company's Content Addressable Filestore (CAFS), a nice piece of technology which, unfortunately, cannot be judged a commercial success, seems to be rather under a cloud. Not only has the BBC ignored it for two major projects for which it would have seemed ideal, but the writers from within the ICL itself is that the device is not long for this world. If these stories are to be believed (and ICL officially denies them), can CAFS equally clever but even more unsuccessful stablemate, the Distributed Array Processor, be far behind in the race to the scrapheap?

WHILE anguished discussion between the BTG and the DoI continue about the future of Immos word in the House of Commons and in Sillitoe Valley is that the government is seeking a new chairman for the company. Current chairman is Richard Petritz, who with the UK's Ian Barron and departed designer Paul Schroeder were the founders of Immos. Petritz last year survived a bid to remove him, but this year, with an unscheduled request for £15 million being before them, and miles of political embarrassment behind them, the UK government matters are more likely to insist on their terms for continuing to support the company.

Amdahl takes an optimistic view of 1983-5

NEDO call to pool R&D effort

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Sperry fights to stay independent

Kevin Cahill looks at a firm's changing financial fortunes

A BATTERED Sperry Corp heaved a corporate sigh of relief last week at news of the \$480 million US Air Force order for its computer division.

The order, which will be worth \$100 million a year in hardware alone over four and a half years, will go some way towards stabilising the fortunes of Sperry Univac, the corporation's computer subsidiary.

Last year Sperry was virtually the only major computer vendor in the US to suffer a fall in market value on the US Stock Exchanges.

According to the annual investment score book produced by the American magazine *Business Week*, Sperry in 1982 dropped 2% points

in terms of market valuation compared with IBM, which rose 54%, DEC, which rose 23%, and Honeywell, which rose 42%.

The market valuation is the share price multiplied by the number of shares issued and is a good indicator of how investors view the company.

A consensus of investment analysts taken by *Business Week* showed the finance men forecasting a drop of nearly 40% in earnings per share at Sperry for 1982/83 - from \$5.25 to \$3.45.

Admittedly the analysts are forecasting a 19% recovery to \$4.49 for 1983/84, which will give some comfort to the worried management.

Apart from the confidence problem, a weakened share price makes Sperry vulnerable to a takeover, and there are plenty of US corporations looking for cheap high technology takeovers right now.

Foremost among the potential predators is the US based General Electric - not to be confused with the UK's GEC run by Lord Weinstock.

GEC recently got rid of its only remaining major non-technology subsidiary and has declared itself in pursuit of further technology acquisitions with over \$2 billion in the coffers to achieve its aims.

Although Sperry has not been named directly as a possible target, New York analysts have noted the company's vulnerability, heightened by the worse than expected third quarter results. Admittedly the Sperry Corp results incorporate major agricultural and other divisions which are suffering far more in the recession than the Sperry Univac subsidiary.

The corporation results for the third quarter, which followed a poor second quarter showed that profits fell from \$51.1 million in the same quarter last year to \$40 million, a 22% drop. Coming in the wake of the earlier slide of 75% to just \$25 million many analysts began to fear for the company's future.

According to Sperry's chairman, Gerald Probst, who took over from the ebullient Paul Lyster last year, a recovery in the remainder of the year is expected. He said that sales of both data processing equipment and defence sector electronics were "strong".

But the sales in those two sectors have to be balanced out against a



PROBST... Recovery in remainder of year is expected.

31% drop in sales in the agricultural machinery sector, and 24% in the hydraulics engineering field.

American commentators have also suggested that Sperry Corp should focus on its two profitable sectors, computers and defence electronics, and divest itself of the machinery and engineering divisions.

Sperry seemed to have taken that kind of advice when it disposed of its UK Sperry Gyroscope division.

But in public the corporate management is resisting the call for divestment, and Probst is doggedly maintaining an optimistic

outlook for an improvement this year.

In the UK Sperry is having a tough time. Overall the UK subsidiary has lost over 260 staff by way of redundancies and natural wastage since May 1982, but management says that recruitment has now started again.

The company's payroll at the end of December was down to 1,128, against a planned level of 1,390, according to internal company documents. Part of the reason for the "gentle" wave of redundancies was a dramatic fall in the order intake at the company in the first nine months of the year.

Again, according to company documentation, orders booked to the end of December were worth £25.7 million, against a target of £48.7 million for the nine months and a full year target revised down from £74 million to £56 million.

To balance that picture out, the company is known to have two major upgrades with existing customers, Abbey National Building Society and the Trustee Savings Bank Group, ready to sign. The combined value of the two orders is put at £20 million.

In addition there are five other major orders which Sperry hopes to announce within the next few months, helping to offset a tough period in the market place.

While order bookings have slid, revenues - the mix of income from sales, rentals, maintenance and other sources - has held up well at £44 million against a target of £52 million for the nine months, the company documents show.

While critics outside the company cite Sperry's "failure" to follow the lead to small distributed systems set by ICL and others as

the main cause of its trouble, Sperry Univac's UK managing director Bill Read remains a dedicated mainframe man.

Writing recently in *Computer Weekly*, he said that the mainframe is here to stay. He pointed out that while the market for miniframes was growing, the market for mainframes was growing too.

"Small computing units offer individual users considerably localised power," Read wrote. "But in most cases, a mainframe is needed to process and relate data so that it can be used as an effective corporate tool."

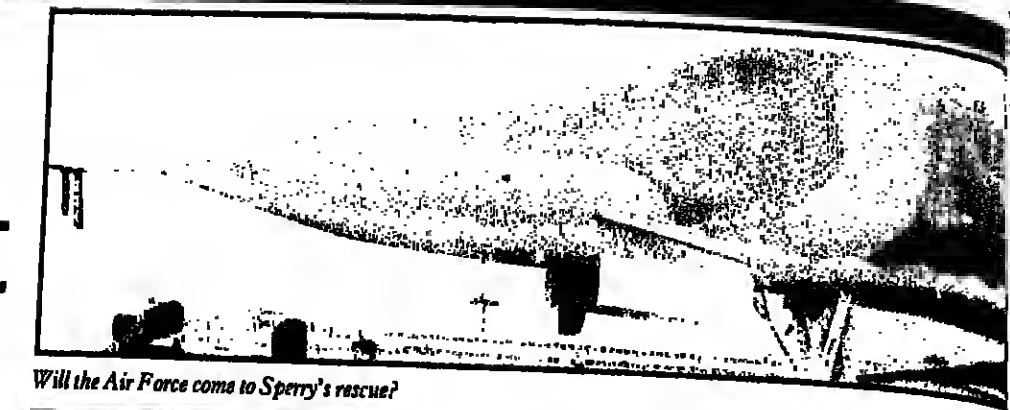
It remains to be seen whether Read is right, or whether the world will drown in a tide of minis.

The race into the personal micro and desktop processor marketplace among the big manufacturers is being won by DEC and IBM. Sperry has been reluctant to enter this market and it must be wondering if it has made the wrong decision.

It has certainly shown a high degree of vulnerability to the recession and it will be looking with envy as DEC and IBM gear up their projected output of 20,000 small machines a month each.

While unwilling to comment officially on the UK figures, a spokesman for Sperry Univac said that the measures so far taken, together with the orders expected to be announced in the next few months were adequate to put the company back on course.

Dr John Ludley, the president of the Sperry Univac European Users group, said he had experienced no deterioration in service or support.



Will the Air Force come to Sperry's rescue?

CDC bids for 'super' leadership

by Kevan Pearson

CONTROL DATA is stepping up its battle with Cray Research for leadership in the supercomputer field.

The company will announce next week new models in its Cyber 205 range, offering up to twice the main memory available on current models. It will also announce memory price cuts resulting from the use of 16 Kbit MOS (metallic oxide semiconductor) chips.

The new 205 Series 600 supercomputers can store up to eight million 64-bit words, equivalent to 64 Mbytes, and can have up to two gigabytes of virtual storage.

The 16 Kbit MOS chips are considerably cheaper than the older 4 Kbit bipolar chips they replace, and CDC expects to cut over 60% from the cost of main memory. Prices of the new models will start from under \$3 million, and first customer shipments are expected to begin in the first quarter of 1984.

Existing machines may be able to use the new chips for memory upgrades, says Richard Hickman, CDC's UK computer systems division manager, but it will depend on the amount of memory already installed. "It might be possible to run both types of memory alongside each other but it will depend on the initial configuration".

Amdahl is currently converting the programs to run on its more modern 470.

He added that a version of the 205 offering twice the performance of existing machines will also be available next year. Currently 205s including the Series 600, run at 400 megafloating point operations a second (megaflops). The more powerful machine will run at up to 800 megaflops.

The company recently completed a test of one of the new machines using four parallel pipelines to process instructions simultaneously. The test established a new record for computer performance and is due to appear in the Guinness Book of Records.

CDC has installed eleven 205s worldwide since the machine's introduction in 1980. This compares with about 57 Cray 1s since 1976. The UK is to get another 205 in April when Manchester University Regional Computer Centre takes delivery of its fourth CDC computer.

The machine will be front-ended by an Amdahl 470 processor with a 4705 communications controller. The 470 will run CDC software originally developed for the IBM 370 mainframe at the UK Meteorological Office where the first 205 was installed.

Amdahl is currently converting the programs to run on its more modern 470.

Revamp at Aregon aims to serve PTTs

by George Black

VIEWDATA specialist Aregon has set up a business consultancy division. The Aregon group, which is predicting annual results of about £6 million, aims to build up a division of 15 to 20 consultants in the second quarter of the year to serve PTTs round the world and corporations closer to home.

Hilary Thomas, who will head the division, was a director of New York-based CSP International, specialising in viewdata, for seven years before joining Aregon.

Chairman John Pearce said that Aregon would be going it alone in the international PTT field, since British Telecom's withdrawal. Ties with Systems Designers, which developed the IVS-3 system for DBC PDP-11 machines and marketed it for Aregon, had now been cut, he added.

Managing director Anthony Chander has been in the US for the last nine months setting up a distributor network. Aregon's



PEARCE... Aregon is going it alone in the international PTT field.

American agents include DEC and Dow Jones. Banks and insurance companies would be among major expansion areas in the coming year, said Pearce.

Data comms firms lead in US computer industry

by John Kavanagh

DATA communications firms are leading the US computer industry in growth, productivity and export success. So says a report by the US company Newton-Evans Research.

The report shows that 16 companies, accounting for over 90% of US data communications equipment sales, had revenue growth of 31% in 1981. Early results for 1982 suggest even faster growth of 40% last year.

Exports accounted for 46% of sales in 1981, making the companies the most export-minded in the computing and communications business.

Productivity in terms of revenue per employee was second only to the peripherals sector, at over \$54,000.

Many new products are expected this year as a result of a doubling of research spending at four companies in 1981.



READ... Is he too dedicated to the mainframe?

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Govt cuts BTG funds by £15 million

by Kevan Pearson

THE government is to cut its financial support for the British Technology Group to £10 million in the 1983/4 financial year, from £25 million this year.

The Group, whose future is being reviewed by the government,



WOOD... Concerned.

Half of jobs saved at failed systems house

by John Kavanagh

ABS COMPUTERS is saving nearly half of the jobs at one of its 20 systems houses, Rika Computer Systems, which has gone into liquidation.

The UK business minicomputer manufacturer will either back the formation of a new company around the three directors and 11 staff, or use Rika's Nottingham headquarters as the launch-pad for a move to the eastern half of the country.

ABS has main offices in Manchester, Bristol, Rugby, Rickmansworth, Woking and Brighton.

"It is also taking on the support of the 10 Rika customers with ABS machines."

"Rika made 18 people redundant and we are prepared to underwrite the retention of the remaining staff in some way," said ABS' commercial director, Patrick Kearney. "This is an opportunity for us: the people know our Simple language and our equipment. We wouldn't like to see that team breaking up."

Kearney said Rika's managing director, Roger Edwards, was one of the people being retained. He added that Rika had suffered the "normal problems" of cashflow. Creditors were due to meet this week to appoint a liquidator. Kearney said ABS was owed about £2,300. Other creditors include NCR and several microcomputer suppliers.

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Transfer of Scottish jobs is denied

France to produce Sinclairs

by Jack Gee
TIMEX-FRANCE is about to begin manufacturing Sinclair computers for the United States market. It hopes to expand its workforce at a time when the Norwegian owned multinational is shedding jobs at its Scottish factory.

But Jean Beaumont, managing director of the French subsidiary said, "There is absolutely no truth in claims that Timex is transferring work from Scotland to France. Each country is sufficiently bedevilled with employment problems without creating new ones."

Beaumont was commenting on statements from Scottish trade unionists that, with 1,900 jobs being made redundant in Dundee, the French government was using a cash bait of 900 million francs (£90 million) to encourage Timex to expand its French operations.

The Timex-France managing director said a decision to extend the product range of its plant at

Besancon, South-east France, hitherto confined to clocks and watches, was taken before the move to cut back in Dundee.

Beaumont added, "If plans go ahead according to schedule we ought to be able to create 900 new jobs over the next three years. The French government has promised us financial help to the tune of 150 million francs (£15 million) - not 900 million francs as the Scottish union is alleging."

Ken Gill, general secretary of the Amalgamated Union of Engineering Workers, Technical, Administrative and Supervisory Section, has said that developments at Dundee "illustrate the non-interventionist policy of the government, which contrasts with French policy, as well as the uncontrolled power of the multinational companies."

The union is looking to Sinclair to help boost employment in Dundee by bringing forward its plans to produce ancillary products to its computer range there.



GILL... "Uncontrolled power of multinationals"

Survey renews attack on System 38

by Kevan Pearson
A XEPHON user survey has put the System 38 under fire again only nine months after IBM enticed the first survey on the system, as being unrepresentative.

The latest survey, covering 66 users - three times the number in the 1982 survey - says that only 17% of the survey population state that they have not suffered performance problems. But 76% claim to have "experienced performance problems of one kind or another."

System 38 Model 5 came in for most criticism, largely because it has been the largest selling model. Fifty-one Model 5s were included in the survey.

Among the major claims are that the system is "overloaded" or "under-powered".

One user commented, "A large proportion of machine resources are devoted to running IBM software. In particular security arrangements seem to be very cumbersome."

Another gripe concerns the insufficiency of the machine's memory. There are rumours that IBM is planning to expand the maximum memory for Model 5 to eight Mbytes, which would overcome many of the present criticisms.

On the service side it emerged that hardware maintenance, education and training and documentation are all rated as "good" by the largest slice of users, and as satisfactory by many more. However systems engineering support is rated from "satisfactory" to "poor".

It seems the problem is that there are not enough systems engineers fully conversant with System 38's unique systems architecture.

On the whole, it appears that many users are satisfied with IBM as a supplier and most of the criticism reflects administrative problems.

And almost half the respondents in the survey have "more or less firm plans to upgrade their CPU to a larger model within the next 12 months, or less frequently supplement it with a second machine".



Inventor of the Quiteron, Sadeq M. Faris, holds a wafer containing experimental samples.

Superconducting device from IBM

by Howard Karten and Kevan Pearson
SCIENTISTS at IBM's Thomas Watson Research Laboratories in New York have discovered a new superconducting device with transistor type properties.

The device, which IBM has patented, is called a Quiteron, after the superconducting phenomenon known as the quasiparticle injection tunnelling effect. It has the same performance characteristics of the transistor - that is it can amplify, invert and switch incoming signals rapidly. But it generates far less heat and so has the potential for far higher levels of circuit integration.

But IBM is keen to emphasise that the Quiteron is still at the research stage and no complete circuits have been built.

From the technical details available it seems that the Quiteron complements the Josephson Junction, another superconducting device. But Josephson technology relates more to diode effects - that is, Josephson junctions act purely

as a switch and cannot amplify or invert.

The potential problem with both types of device is the extremely low operating temperature needed to produce "superconductivity".

This phenomenon will not happen until either device is cooled to minus 273 degrees Centigrade, which could severely limit applications in general purpose computers.

But one area where they may have an application is in the next generation of supercomputers being designed by Cray Research, Control Data and possibly by IBM.

Present generation supercomputers like Cray's IS and CDC's Cyber 205 use fresh cooling, employing a liquefied mix of inert gases. Neither goes down to the temperature of liquid helium, which is needed to produce superconductivity. But the potential is there as some experts think that the supercomputer market could grow tenfold before the end of the decade.

Chip start-up costs tripled since 1975

THE cost of getting into high technology semiconductor manufacturing has rocketed over the past eight years, according to the Semiconductor Industry Association. The cost of setting up a five-micron four-inch wafer processing line (for 7,500 wafer starts a year) has jumped from 1975's \$10 million to \$30 million.

For more advanced one-micron processing this cost will exceed \$60 million by 1985, the SIA reckons.

Despite this, new IC manufacturing ventures continue to pop up, undaunted by the worldwide recession. The SIA puts this down to the greater availability of venture capital, particularly in California. Government money helps too. The SIA notes that UK government-funded Immos has received the biggest capital infusion of any start-up in the semiconductor industry.

On the run

COMPUTASTARS team for 1983, the charity run from John Groat to Land's End, needs an additional two UK runners to bring it up to strength following withdrawals due to illness and injury. Athletes interested in joining this international team should contact team manager Gordon Cairns at the address given on the Computastars entry form, page 12.

Vendor of year

ICL has named Mullard as its component supplier for 1982. Mullard sells ECL and TTL logic and bipolar memory chips to ICL and received the "vendor of the year" award through its ability to meet and maintain ICL's cost and quality IC requirements.

Micro therapy

PATIENTS in occupational therapy departments of hospitals and day centres are to have microcomputers to play with. The idea was announced by Minister for the Disabled Hugh Ross, who said it was an experiment to assess the therapeutic value of micro and to help long-stay patients gain new skills. The hardware is the BBC machine.

Controller chip

MOSTEK's local area network controller chip, the MK68590, will soon be on the shelves at distributor Pronto Electronic Systems in Ilford. The chip, part of Mostek's portfolio of peripheral chips for the Motorola 68000 processor, is second sources, is designed to interface any 16-bit microprocessor to Ethernet. The single VLSI device replaces about 160 medium scale chips and provides all protocol handling needed for an Ethernet network.

Sinclair divides

SINCLAIR Research has reorganised. It has split into two operational divisions - current and advance products - and brought two more directors on to the board. Clive Sinclair still holds the reins, and will personally supervise the advance products division. The other division, headed by Nigel Searle, will look after product development and marketing of the current ZX81 and Spectrum computer products, with peripherals and software for them.

Sirius catalogue

ACT has brought out a hardware and software Sirius-I catalogue. It is the first full-scale listing issued by the Birmingham micro software house and distributor. It gives details of standard and Winchester Sirius, plug-in memory boards, printers, operating systems, languages and packages. Some 300 products are included. A second edition is due to appear in March, with further editions quarterly.

bjd (exports) Ltd.

INTER-OFFICE MEMORANDUM.

Ian
Clipped this from Office Equipment Index. I think we need to talk to Data General.
Can you set up a meeting
Gerry

With the information presentation facilities available on Data General's CEO, and the Trendview graphics package, executives are able to access data bases on the system to interrogate the information needed for report writing or business analysis. They can also prepare their own charts on the screen or graphics printer without having to learn any computer language.

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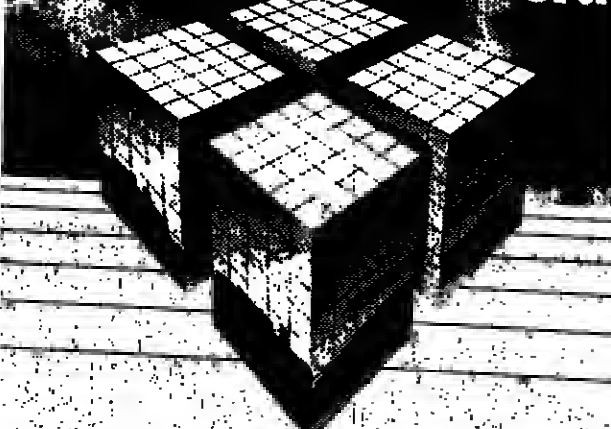
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Theatres to revive ICL 1500 range

by John Kavanagh
THE theatre world is to give a new lease of life to ICL's ancient 1500 range of small computers, now being phased out in favour of the DRS 20. A UK software house specialising in theatre booking systems and communications is aiming to sell theatre packages at a rate of one a month following a commitment from ICL to supply up to fifty 1500s.

The software company, Synchro Systems, has signed a contract under ICL's Traderspoint scheme for systems houses. It will sell its Boris theatre system on the 1500, eventually converting to the DRS 20.

The company has also developed a booking system for sports centres for the DRS 20. A version for private sports clubs is being produced for ICL's personal computer.

Synchro and ICL exhibited together at the Entertainment Conference last week. "We had strong interest from US visitors and I am going over next week to follow up the leads," said Synchro chairman Paul Warop. "There are over 400 theatres in the UK and there is potential for sales throughout the English-speaking world."

Bug in system at Logica's launch

by George Black

LOGICA's support service was slammed by a major user last week. "We have a bug with Xenix which could cripple our production any day," Alex Riley of Plessey Office Systems complained at a commercial seminar.

"We have rung up and rung up and had no help at all. And we know of others in the same position. We just hope we're going to get better service with Unity. Xenix is a wonderful product but I can't say anything good about your support."

Logica's software products group sales manager Maurice Rusoff assured him the problem would be looked into.

The exchange happened at Logica's launch of its Unity version of the Unix operating system for use on Digital Equipment's Vax mini series.

Rusoff said there had been little criticism of Microsoft's Xenix

which Logica is supporting. But an ITT delegate retorted: "Just because you don't get to hear of a bug doesn't mean it doesn't exist."

Technologists from the big corporations and academic institutes turned out in force for three seminars on Unity. Some 30 to 40 organisations were represented at the British launch of the Unix-lookalike developed by Human Computing Resources of Toronto. Logica, the £33 million turnover British software house, is to distribute and support the product, which operates concurrently with DEC's own VMS on the Vax.

"It offers co-existence between the two operating systems on the Vax," said Adrian King, of the software products group.

But he struggled to convince an expert audience that Unity would be able to give a complete Unix emulation.

Unity is claimed to be a com-

plete version of Unix System III as designed by Bells Labs in 1980 - with no corners cut.

"All previous versions have taken over the whole computer. We're now talking about a solution which offers the user equal use of the two systems," said King.

Several other 32-bit minis can now use Unix-type operating systems, including those of Perkin-Elmer and Hewlett-Packard. But most use a Unix system as an alternative instead of a complement. The implementation on the Vax range is particularly significant because there are now between 600 and 700 Vaxes installed in this country.

King said that at the computer exhibition in San Diego, California, there had been a staggering range of hardware now supporting Unix. "And there are more rumours about IBM and Unix than I care to count at the moment."

KING... "More rumours about IBM and Unix than I care to count."



dBase II maker for UK

by George Black

ASHTON-TATE, the \$400m Los Angeles company which developed the successful dBase micro package, has set up a branch. Its head, David Imberg, aims to boost sales of the relational database management system through British distributors and OEMs, as well as to launch new software.

About 2,500 systems have been installed in this country so far, mainly by Encore, the largest UK distributor at present. But Imberg thinks there is a market for "tens of thousands more". He is planning to bring out an applications register soon and to recruit a number of technical support staff. This party software will also be encouraged.

New products under development include Planner, which Imberg describes as a cross between a spreadsheet and a micro-modeller, and Strategist, aimed at handling feasibility studies for product managers and venture capitalists.



IMBERG... "Thousands more"

Superfile goes US

SOUTHDATA, London owned the Superfile database manager, about to sign an American distributor. Established American databases may incorporate major features of the freeform British DBMS when the deal is concluded, says Southdata's Peter Laurie.

He has just returned from the COM83 exhibition in San Francisco, attended by 60,000 over three days. Talks have also been held with Digital Research, which is believed to be interested in a DBMS to bolt on to C-Basic. Southdata plans to look for French and German agents later this year. And a 'C' version of Superfile is expected to be launched in April.

In preparation is an interface with the Analog Concept Learning System, developed by Professor Donald Michie at Edinburgh University. The expert system, written in Pascal, is claimed to make the database easily reducible to a set of rules.

Database snag solved

AMERICAN software house Applied Data Research claims to have cracked a problem that IBM couldn't in the updated version of its relational Dataquery system. Dataquery, part of the ADR Datacom/DB database system, now lets users change fields in selected records on the file. UK director Nick Pollard claims Datacom is now a realistic alternative to IBM's SQL/DS.

"Whereas SQL requires an enormous amount of storage - as much as two Mbytes - the new release of Datacom can be demonstrated to take as little as 48K on an IBM 370," he said.

Datacom has been the focal point of ADR's range since it moved into the distributed database arena at the end of 1981. This is the third release of Dataquery, a relational query system that operates in both online and batch modes.

£96,000 grant for Geest

GEEST Computer Services is using a £96,000 grant under the NCC Software Products Scheme, to launch a new commercial property management system. The plan involves the rewriting of Geest's estate agents' package Prose and accounting package Gems, which handles mainly domestic property, for use in commercial premises.

First two installations were completed late last year and now managing director Philip Wainwright is running seminars to promote the product. He aims to convince large public sector property owners of the system's benefits.

Geest is a Texas Instruments OEM and has recently become an OEM for Tandem. The new package will run initially on TI minis.

Office chief

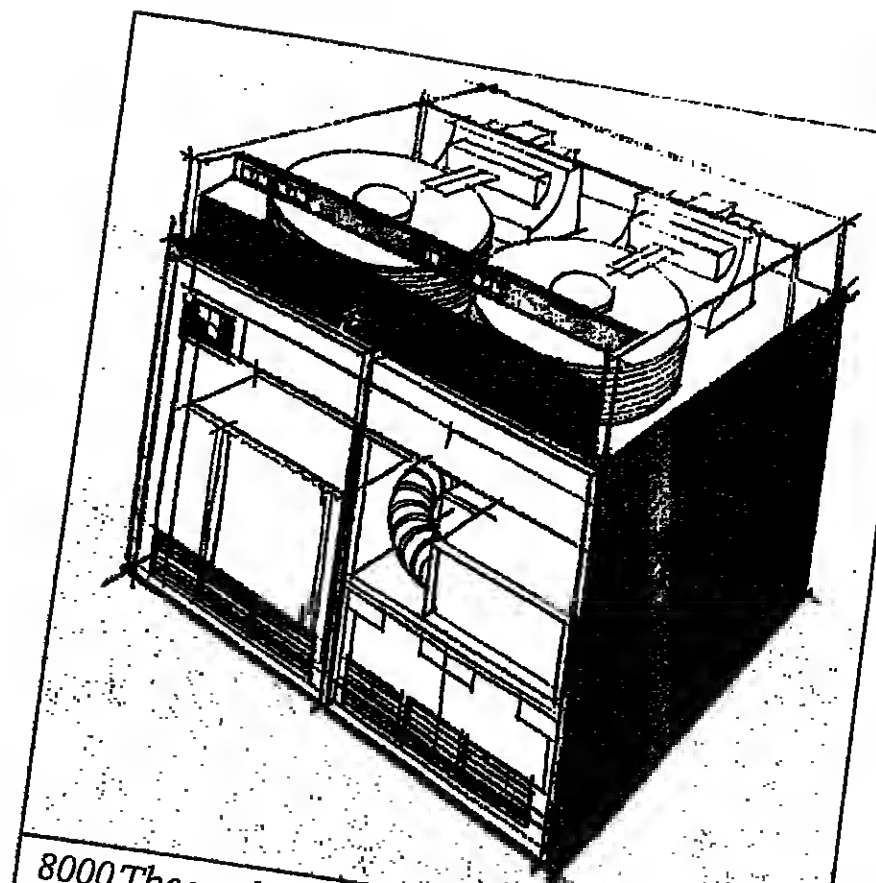
MANAGEMENT consultancy PA International has appointed a former Department of Industry man to head its new office automation division. He is Colin Leeson, who worked on the DoI pilot programmes in office automation. PA, with over 2,000 staff in 22 countries, provides business and technology advice in industry, commerce and government.

Unix release

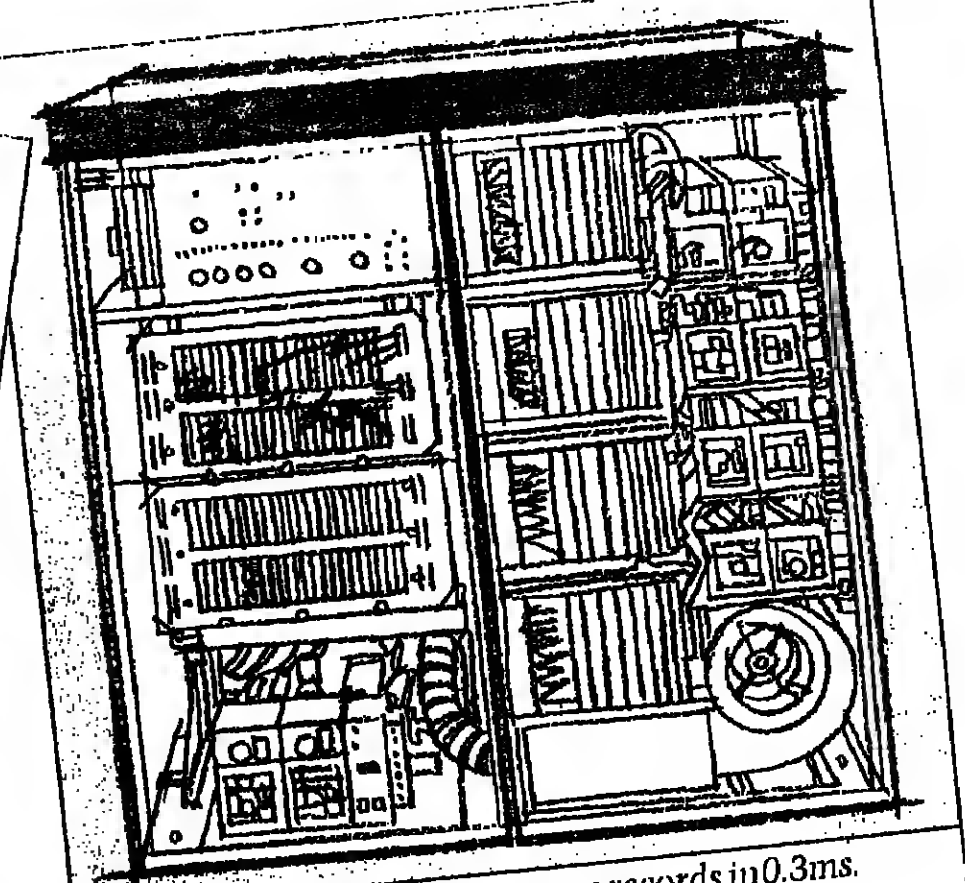
LATEST version of Bell Labs' operating system Unix, System 5.0, was released at the Unicom exhibition in San Diego at the end of last month. Bell has improved the performance of its own machine, the 3B20, running under Unix, as well as DEC's Vax. At present there are no plans to sell the 3B20 outside the Bell organisation. System 5 will not be available in a Bell version for models smaller than the FDP-11/70, nor on the Intel 8086 or Motorola 68000 chips. It will be supported by Bell Labs directly, but only for source code licensees.

Retailers' system

AN integrated business system costing about £5,000 for the small independent retailer is to be announced in the spring by Andover-based Tabs. Founder of the micro firm, Terry Poole, said the product, initially run on Televideo but later to include the Unix-based Fortune, was aimed at the still untapped market of corner shops and restaurants. Merchant bank Hambros, which put £150,000 into Tabs, is expected to increase that figure this year, when turnover could rise substantially to £2 million. The 50-strong company has a chain of 500 UK dealers.

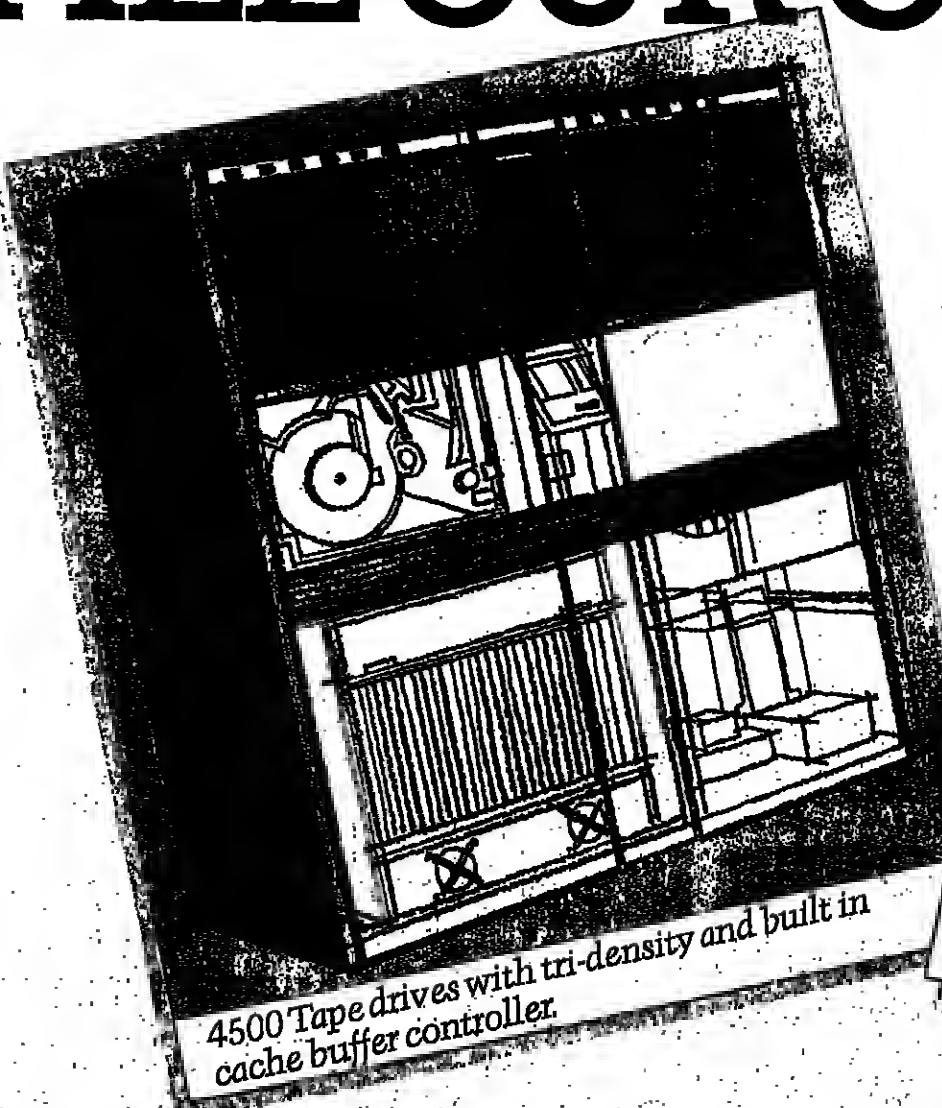


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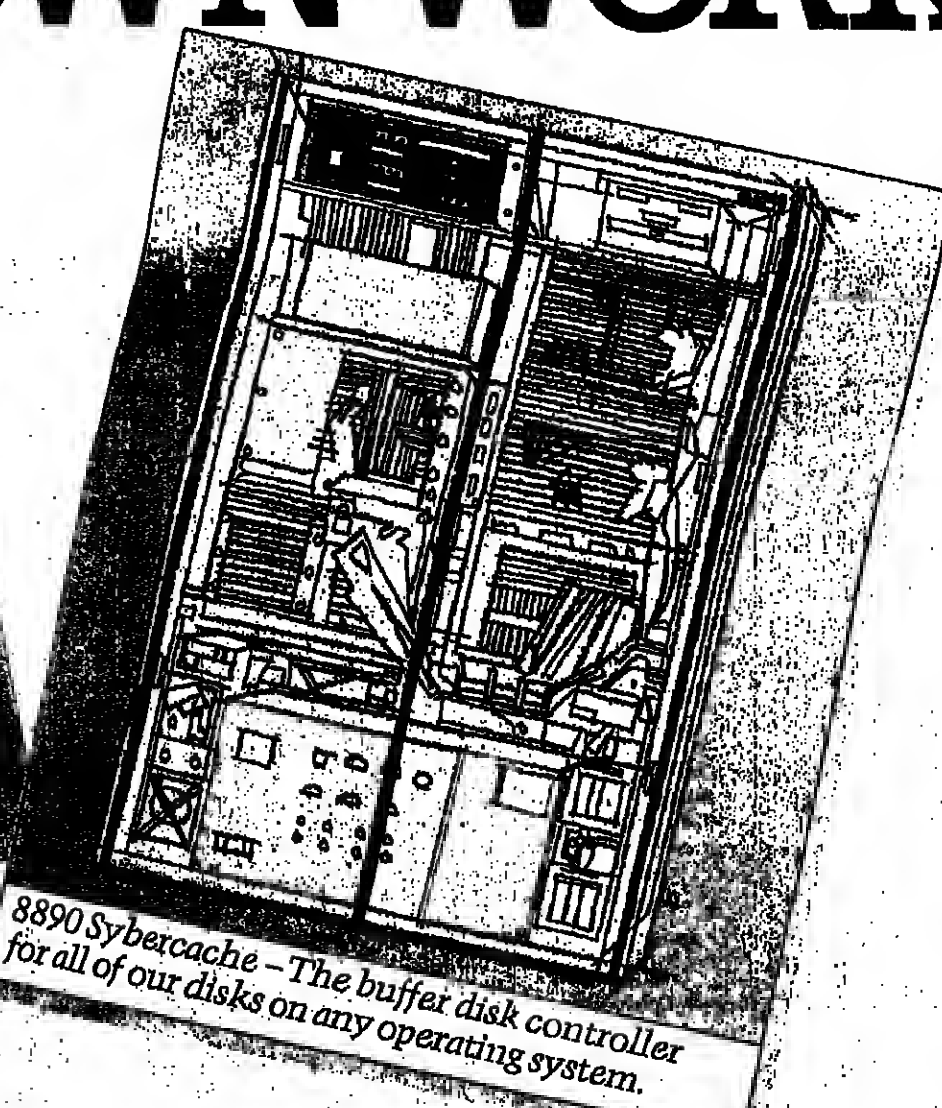


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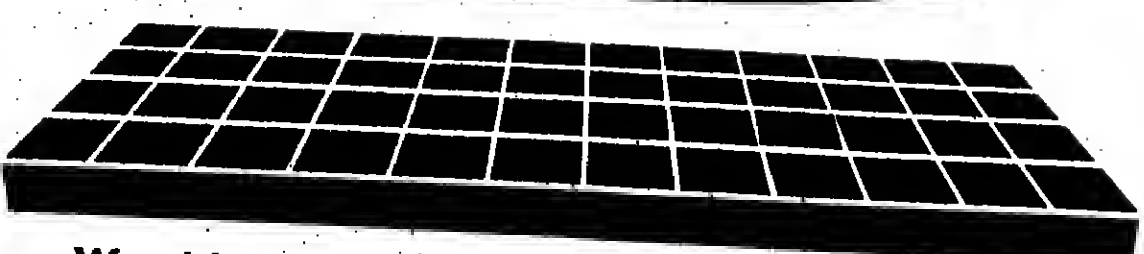
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Burroughs sales buoyant

BURROUGHS continues to improve its overall financial position, although chairman Michael Blumenthal expressed disappointment with the company's 1982 results. Sales rose 23% to \$4.19 billion. Profits increased 11.4% to \$166 million. Memorandum results are consolidated with Burroughs' for the first time since the takeover in December 1981.

"We are moderately optimistic about the outlook for 1983," said Blumenthal. Order growth was flat in the fourth quarter, he added, but had begun to strengthen in recent weeks.

CAP 32% growth

COMMUNICATIONS-based work accounted for nearly all CAP's £7.8 million sales in the six months to October 31, with overseas business bringing in more than 16%. The growth was 32% over the same period in 1981, while profits improved by £250,000. Chairman Barney Gibbons said he was very pleased with the results, and he expected the full year's results to show "a useful improvement" over the previous year. The company said defence contracts ensured that it was up to date on advanced techniques. The use of point-of-sale devices in distributed networks offered important prospects in the retail, distribution and leisure industries, it added.

Prime figures

UK division of Prime matched the company's overall sales growth of 19% last year. Net profits for the whole company also rose by 19% to \$44.9 million on sales of \$435.8 million. Earnings per share were \$1.48. The fourth quarter sales were also up 19% on the same period in the previous year. Profits were up only 17% to \$12.2 million, although president Joe Henson said the results exceeded the company's expectations. The year had been an extraordinary one for Prime, he said, in an environment as difficult as any for 40 years. He was cautious about the prospects for an economic recovery.

Wang profits up

WANG's second quarter sales, to December 31, were up 34% over the previous year's second quarter to \$367.5 million. Profits went up 38% to \$34.7 million in the same period and new orders increased 40%, although president Dr. An Wang said performance had been adversely affected by the worldwide economic climate and the continued strengthening of the dollar. The half-year growth was 32% to \$672.6 million for sales and 38% to \$59.7 million for profits.



SKAR... "Difficult year".

Norsk into profit in the UK

NORSK DATA, currently the City's favourite foreign company, has moved into profit in the UK and increased overall profit by 60%.

The £6 million profit was better than the City expected and the share price moved to £15, which gave the £50 million turnover company an average market value of £150 million. (The market valuation is the share price multiplied by the number of shares issued.) Norsk Data, founded in 1967, has been operating in the UK for three years, and the move into profit here is seen as a major challenge met and accomplished.

The French and German markets have proved slightly tougher for Norsk. Both are still showing a loss for the company. This is despite high exposure in Germany, where Norsk's 32-bit ND500 is widely installed in universities and research establishments, including the Max Planck Institute.

Company president Rolf Skar said the year was very difficult, but despite the problems Norsk doubled its sales to the UK, increased the volume of exports to the US to 10% of total sales, and increased share in the Norwegian market to 50%.

To improve marketing in Germany Norsk has bought a minority stake in mini manufacturer Dietz which will now sell Norsk computers via its 70 sales staff.

In the face of the recession German companies have grown strongly nationalistic in their purchasing policies, with many foreign companies, including DEC and ICL, finding the going rough. Industry analyst Peter Roe of brokers Hoare Govett, forecasts a significant increase in turnover for Norsk in the German market and a major improvement in profitability there.

The sales figure for the UK is not available but Norsk has created over 100 jobs in the UK and established its European marketing headquarters at Newbury, Berks.

There are no current plans to start manufacturing in the UK.

Booming HP offers 1,000 jobs

"FOR £22 million we will bring up to 1,000 jobs to Bristol," was the promise made by Hewlett-Packard UK managing director David Baldwin when he presented the accounts for the UK subsidiary of the fourth largest American computer company.

And the jobs will cost very little by way of grants.

Hewlett-Packard UK grew at twice the pace of the US parent, turning in a 42% growth in turnover for the year ended October 1982.

Sales in the UK were £168 million compared with £118.9 million in 1981. Despite the problems of the rising dollar and sliding pound, the profits also rose by 10% to £13.1 million from £11.9 million.

This sparkling performance has encouraged the company to extend the Queensferry, Scotland, plant by 108,000 sq feet; to open a new head office at Pinewood, Berks, and to begin work on the 165-acre site at Yate, near Bristol.

The Bristol facility, which is now beginning construction and has a team of 25 engineers already on site, is expected to be completed in the mid-1980s. The final factory will measure over 1,000,000 sq ft and will eventually employ about 1,000 staff, according to Baldwin.

He said that because the factory was not in a development area the only grants of any significance that HP would get would be associated

with research and development.

In line with this expansion programme capital expenditure on plants and buildings will continue at last year's level of £8 million, or a little more, Baldwin said.

Hewlett-Packard UK exported about £27 million worth of product — not a particularly large volume by the standards of other computer companies and a further reflection of the popularity of HP's products in the UK's own marketplace.

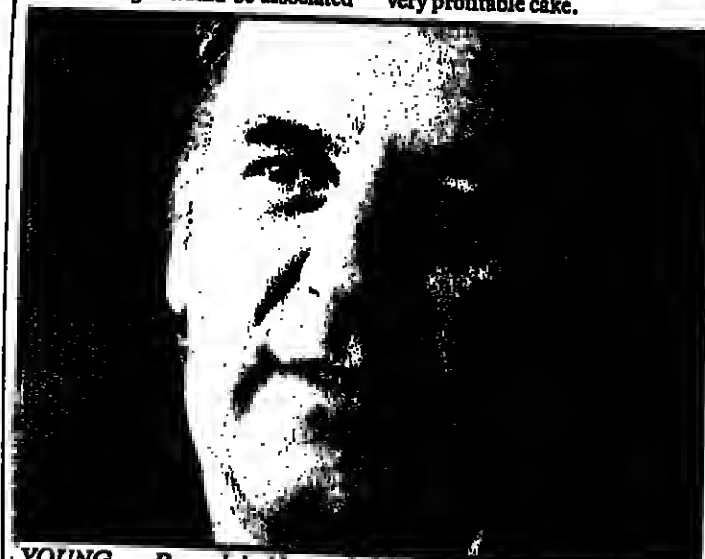
Sales per employee at HP are high, as is typical with the subsidiary companies of large corporations, and rose from £63,764 to £83,918.

The presentation of the accounts was an occasion for the local HP management to beat the drum.

John Young, founder and current chairman of the parent company, said the quality of co-operation and skill in the UK employees had continued to make the UK the most attractive investment proposition outside the US.

Young is being rewarded for his unwavering commitment to the UK by a visit from the Queen when she visits California next month.

Hewlett-Packard is the only company in the computer industry to be so honoured, and the claim by the company that in the first quarter this year the only subsidiary growing faster than the parent was the UK subsidiary, will undoubtedly convince Young that royal visits are but the icing on a very profitable cake.



YOUNG... Rewarded with a royal visit.



MELCHOR... Dissatisfied with UK tax rules.

Melchor steps down as capital funds merge

IN a tacit admission of the difficulties facing American venture capitalists in the UK, Jack Melchor has stepped into the background as his Anglo American Fund merges with the UK's Rainford Fund.

Melchor was brought to the UK by the British Technology Group to run the £2 million venture capital fund aimed at helping innovative high technology start-ups in the North-east.

The Rainford Fund, which receives its cash from a group of UK institutions including Pilkington Brothers, the glass company, and the Industrial and Commercial Finance Corporation, is also under American management.

Rainford has been the more active of the two funds and Melchor has often made public his dissatisfaction with the tax rules in the UK, which he says inhibit the kind of risk-taking Americans will indulge in to generate jobs.

Melchor was a financing founder of Hewlett-Packard and is

credited with a key role in the style funding of technology in Silicon Valley, commentators say he has given over a million jobs in the years.

So far Rainford and the American Fund, both of which are small by American standards, have made £1.9 million investment in five computer companies.

No one of the investments has far reached the kind of success take-off for which US capital companies like Apple and Osborne are famous.

The combined investment of the two companies is £1.9 million.

The BTG has indicated that merged funds will seek out additional investment opportunities in the form of a subscription.

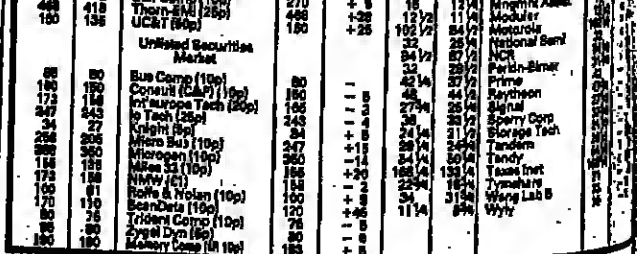
The timing is likely to be the emergence of some of the investments already made by companies, possibly on the listed Securities Market.

SHARES TABLE

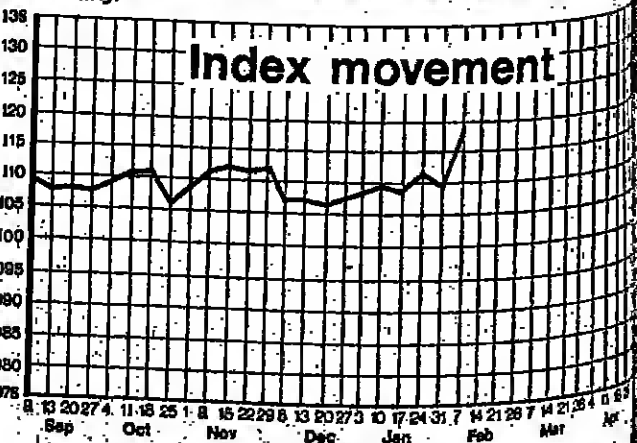
The shares table, which is specially compiled for Computer Weekly, lists selected computer companies that reflect the state of the computer industry.

1982				1983			
High	Low	Stock	Price	High	Low	Stock	Price
277	262	Admiral	87	271	259	Admiral	87
48	41	Apple	125	48	41	Apple	125
121	116	Burroughs	124	121	116	Burroughs	124
121	116	Cambridge	124	121	116	Cambridge	124
226	218	Cray	226	226	218	Cray	226
226	218	DEC	226	226	218	DEC	226
226	218	IBM	226	226	218	IBM	226
226	218	Intel	226	226	218	Intel	226
226	218	Norsk	226	226	218	Norsk	226
226	218	Prime	226	226	218	Prime	226
226	218	Wang	226	226	218	Wang	226
226	218	Yale	226	226	218	Yale	226

The table shows the closing prices in London on Friday and in America on Thursday. The index is based on the prices of the UK companies in the table. Highs and Lows are shown where necessary.



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Company News is compiled by Kevin Cahill

MICRO NEWS

TI micro follows the IBM trail

TEXAS Instruments has accepted the inevitable and built its latest microcomputer offering around a processor chip from rival semiconductor house Intel. The TI Professional Computer breaks away from the line of multi-user micros and mils using TI's 9900/99000 family of microprocessors, moving instead to the Intel 8088.

"The independent software world has selected a particular architecture as standard," says Dave Monk, programme manager for the TI Professional Computer outside the US, "and it is not really feasible to go to this sort of market with a different architecture. It is driven by the available software."

TI is sticking to its own processors in its other micro ranges. It has just upgraded its Business System 200 and 600 ranges by putting in the faster 99000 processor in place of the 9900 previously used, and has used the 9993 in its new home computer, the TI 99/2.

The home computer was one of two new offerings from TI's consumer electronics side to be unveiled in the US recently, and is essentially aimed at the Sinclair Spectrum market. The other is an Epson-like portable machine, the C240, which will appear in the UK in April for below £200. The

But software written for the UK market is not in place yet, says Monk, which is why TI will not be pushing the machine here seriously until May or June, and only then to large customers and OEMs. A full dealer programme will be set in motion later.

Although TI's Professional Computer is very much set in the hardware mould IBM made, Monk says it has some "tasty" aspects. Monochrome or colour displays are available, software compatible with each other so programs do not have to be tinkered with when moving from one to the other, and which give 720 by 300 pixels resolution.

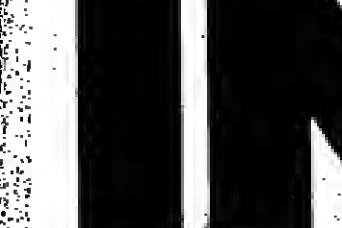
The most interesting thing that will use up expansion slots is a speech analyser option. This will come along some time in the middle of the year, says Monk, and will use TI's TMS 320 32-bit signal processing chip. It will allow 16 words active at once, though other sets of words can be switched in from memory as and when wanted.

A basic single floppy 64K machine will start at £2,000. The price rises to about £5,000 for a colour machine with 256K RAM and a five Mbyte hard disc.

MONK... Driven to the IBM route by software availability.



MONK... Driven to the IBM route by software availability.



MONK... Driven to the IBM route by software availability.

MONK... Driven to the IBM route by software availability.



LAWRENCE... "Quicker, simpler — and it works."

System can design the Cray 1 equivalent in '8 man years'

by Martin Banks
A CAD system capable of designing a Cray 1 equivalent in just eight man-years is now being made available in Europe.

The system, known as Scald, comes from a two-year-old Californian company, Valid Logic Systems. It has established itself in Slough, under the tutelage of European vice-president and general manager Tom Lawrence, and has appointed a network of European distributors to handle the system. Among Valid's first customers is Digital Equipment, and the company hopes to top \$10 million worth of business this year.

Scald (Structured Computer-Aided Logic Design) is the result of development work at Stanford University and the Lawrence Livermore Laboratories in California. In its commercial incarnation it is a 68000-based microcomputer system that, according to company president, Jared Anderson, allows designers to use techniques similar in concept to structured programming to produce structured logic designs.

"The idea behind Scald is to keep errors out of the design at every possible stage," Anderson said. "The designer can start by entering a system concept — a CPU, a bus, some memory, some I/O, etc., and then by a structured top-down technique define the various levels of the system more and more completely."

According to Lawrence — who before joining Valid held a similar position with Apple Computers — the key to the Scald system was the discovery that splitting the simulation software package in two, more than halved the processor overhead. It thus became possible to run the programs effectively on a micro.

"With Scald, one program tests the timing of a design, while its logic states are assessed separately," Lawrence said. "It is quicker, simpler, and it works."

To complement the simulation programs, the system also includes

a comprehensive library of components, incorporating all their relevant characteristics.

A typical system, consisting of the 68000-based Unix running processor with two to four Mbytes of memory and 35 Mbyte disc, plus four 8086-based workstations that have displays with 800,000 pixels, will cost about \$160,000.

The software, written in Pascal, is already supported on DEC and IBM 370 machines. Other hardware, such as Prime, is being considered. The output from the system is a logic schematic that can easily be interfaced with all common physical design systems used for laying out circuit boards.

Lawrence claims that Scald is between five and 10 times faster than other design methods, and that the ratio increases with design complexity. The Cray 1 equivalent designed using Scald is part of a network of 16 such machines at Livermore, and it was at that level that the original concept was defined using the system.

Office equipment firm to sell own-brand micro

BUSINESS systems distributor Office and Electronic Machines (OEM) is branching out into selling its own-name microcomputer. Until now it has been distributing word processors and electronic typewriters from Adler and Imperial among its range of office equipment.

The micro, called Orion, is built for OEM by Future Technology Systems in Scotland, using FTS modular systems architecture based on the Intel 8086 16-bit processor.

It starts at just under £3,000 for

a 128K machine with twin half-Mbyte floppy drives and a CPM-86 based operating system. From that it can be expanded, by adding extra hardware modules, up to 896K of RAM with 20 Mbyte Winchester disc drives.

The machine is designed to work as a standalone workstation, or as part of a communication network of machines. Orions can communicate to other Orions or to a mainframe, through a variety of protocols including HDLC/SDLC, 3270 and 3780. Other options are a telex interface

and a videodata modem.

The operating systems, ROS/C and ROS/M, are extensions of CPM-86 and MP/M-86 which include extra system features and utilities. These include password security, a fast disc copying utility allowing a floppy to be copied to another in just over a minute, and the ability to generate special character shapes.

OEM will supply some applications programs itself — a word

processor, micro to micro file transfer, telex transmission and reception and videodata — but is offering Peachtree packages as the preferred accounting and office productivity software. Languages supported include BASIC and C-BASIC, Micro Focus CIB Cobol, and Microsoft Pascal and Fortran.

Distribution will be through OEM's network of dealers supported by a national account salesforce.

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Distribution will be through OEM's network of dealers supported by a national account salesforce.

Micro News is compiled by Robert Parry

MICROSYSTEMS 83

CANCELLED

THE WEST CENTRE HOTEL
100, BROAD, LONDON

Wednesday, February 23
Thursday, February 24
Friday, February 25

Inmos close to cash limit

ACCORDING to a Parliamentary answer given to Tory MP Michael Grylls by Industry Minister Patrick Jenkin, the £15 million put into Inmos recently was a loan and not equity financing.

The Minister said the £15 million would eventually be converted into cumulative preference shares, but the fact that the money was handed over as a loan emphasises the extent of the cash crisis at Inmos.

Speaking on the BBC Today programme last week, Inmos managing director Iann Barron admitted that the government had set a cash limit for Inmos and the company was close to that limit.

While specific figures about Inmos investment and performance have still not been made public, a senior director in a large UK electronics company estimated that the book value of Inmos assets was £65 million, implying that £50 million had been written off.

Britain's Biggest Office Automation Show is

Barbican, London 22-25 February 1983

INFO 83

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Please note persons under 18 will not be admitted.

CUT OUT AND KEEP

Ops search for distant galaxies

CONTRACT operators do not normally bother themselves with the stars, but when their six months' work at stake they will look anywhere. So it is that 10 contract ops from KPG Computer Services are now happily employed at the Rutherford Appleton Laboratory in the windup of the recently launched IRAS satellite.

IRAS is a joint project between the US, UK and Holland, and its purpose is to build a complete map of the sky using the infra-red wavelengths invisible to the human eye and conventional telescopes.

This will take about seven months, during which Rutherford Laboratory will supplement its permanent operators with 10 from KPG. "We couldn't guarantee operators after the project finishes," explains Tony Lowe, controller of central operations.

There are five shifts, three of eight hours during the week, and



Data rains down heavily from the IRAS satellite on to the Appleton operations room.

two of 12 hours at the weekends. Average earnings are about £200 a week.

The work has two daily climaxes when the IRAS satellite passes overhead, and unloads to the lab past 12 hours or so. It is then all hands on the terminals as data is converted from radio waves to microwave signals passed along cables to Digital Equipment PDP-11s for preliminary analysis.

The first stage is a real time data check-out, with the operators being alerted to any dirt, such as out-of-range values, on their console. The data comes in so fast that an analogue tape has to be made before the data is redigited by the PDP-11s after the satellite has passed over and stopped unloading.

Then it is time for a preliminary look for astronomical bodies, for which work is a Floating Point array processor is called in to give extra number crunch. A correlation process is used, filtering the

data streams, and transporting it across the operations room to an ICL 2900 to complete the analysis.

The purpose of this preliminary analysis is to have some idea of what bodies are around for the satellite's next pass, which covers a sector of sky that overlaps slightly with the last pass.

The PDP-11s have another vital sophisticated job - to point the 12-metre receiving dish at the satellite each time it passes overhead. Since the satellite's orbit changes little by little each day in a process known to astronomers as precession, the computer has to be constantly updated on the position from automatic tracking.

The main problem for the IRAS team is that all bodies give off infra-red radiation as heat. Looking at the sky through an infra-red camera is rather like looking at the stars in central London - the bright lights around us obscure the heavens.

The only answer is to keep the telescope very cold, so that it

gives off hardly any heat, or infra-red radiation. This is achieved in IRAS by using a giant cooling system filled with liquid helium kept at just two degrees above the absolute zero. Unfortunately the helium runs out after six months, so the data has to be captured - fast.

IRAS is particularly on the look out for cool bodies like interstellar gas and red giants that do not give

off much visible light but which shine brightly in the infra-red. It is also searching for far distant galaxies whose faint light is undetectable after being smothered by the earth's atmosphere.

Astronomers hope to gain more knowledge of the early development of the universe from these observations, since the radiation reaching us from these far distant galaxies was given off soon

after the genesis.

At any rate, there will be enough data to keep astronomers happy for several years after IRAS has ended its brief but productive life.

There will be more studies yielding data after that, and the Rutherford Laboratory will be ideally equipped to receive it. This means more work for operators, so we can expect the 10 from KPG to be on their best behaviour.

Cobol task group almost ready with its proposals for screen management

COBOL is still top of the pops, holding its ground firmly against newer computer languages like Pascal and PLI, according to a national survey of commercial users. So presumably there should be a more than passing interest in the various bodies responsible for development of the language and setting of standards.

One such body is the Screen Management Task Group (SMTG), which is now considering how best to implement the next major development of the language - communication with and management of the screens.

The work of SMTG is closely followed by the Cobol specialist group of the British Computer Society. A former member of SMTG, Tom Povey, a senior software engineer for Burroughs, recently addressed the BCS Group on screen management.

The proposals are at last almost ready, said Povey, but remain to be finally cut and dried.

Many of the big names are represented on SMTG: Digital

Equipment, Data General, Texas Instruments, Sperry Univac, Control Data. A notable absentee is IBM, which is hovering on the fringe, as well as ICL, which is hoping soon to join.

SMTG reports to the US Cobol committee Codasy, which keeps a record of recommendations it has approved in its Journal of Development. Codasy in turn reports to the American National Standards Institute (ANSI) which, because of US dominance of the computer industry, probably yields more clout in setting international Cobol law than ISO, the International Standards Organisation.

SMTG has for several years been pondering how to fit screen management formally into Cobol. It will be several years more before ANSI finally endorses any set of proposals. Hardly surprising, then, that meanwhile many computer makers have gone it alone with their own screen handling facilities linked to Cobol.

IBM has its ponderous CICS, for example, and for smaller

microcomputers Micro Focus has its popular Forms 2.

One of SMTG's problems has been to gather in the reins and yet make the proposals it eventually creates sufficiently attractive to users and manufacturers already accustomed to good screen handling. But the major problem has been in achieving independence of terminal.

There is a multiplicity of terminal display sizes and differences in the facilities offered. Some terminals are dumb, others intelligent, yet others are microcomputers in themselves.

There is also the question of language independence. Believe it or not, the Cobol people want users of other languages to have their screen handling facilities.

Another requirement is to extend the Validate verb already passed by Codasy for checking data values, to the local screen input. Data would then be validated twice - at the screen on input, and in the program itself. It would be necessary to bring together er-

ror messages from these possible two sources to avoid confusion.

The dilemma facing SMTG was whether to have screen management embedded in the Cobol, as an external facility, which would keep it in tune with present offerings available from some manufacturers. The latter option was plumped for.

The Cobol program itself deals only with Forms, which are logical screens of information quite independent of the display size available. A form might, for example be a list of stock sold on a particular day, and might consist of many display screens of information, or just one item.

The program talks to these forms, picking off information, or writing information to them, by means of a Screen Manipulation Language, SML, embedded in it. Description and setting up of screens is done from outside the program, to preserve independence of language.

The forms are linked to the actual screen by layouts.



POVEY... Screen management proposals not quite cut and dried.

Last years of a dying language

CORAL 66 is, sadly, a dying language. Its main applications in defence will gradually be taken over by Ada. But Data General has decided to cash in on the last years of its lease by building a versatile Coral 66 computer capable of implementation on a variety of hardware.

"It will be five or six years before Ada completely takes over," says a DG spokesman. "This compiler should fill the gap."

The compiler was designed by DG but built by Basingstoke-based Albetros Engineers and complies with British Standard Institute's BS5905 requirements.

The compiler is written in the rival language Pascal and is divided into two parts - a common front processor which is machine independent, and a machine-dependent back end that translates intermediate code produced by the front end into assembly.

University crisis of computer addiction

by John Riley

MACHINE code junkies are causing concern in the computer science department at Brunel University.

Dr Chris Reynolds, senior lecturer in the department explained: "For some years we've been worried about students getting hooked on to their computers with at least one student out of 50-60 each year ending up clearly badly addicted."

"Noticeably last year, however, we have found students to be already addicted when they come, as a result of using personal computers at home or at school."

Studies conducted within the department have shown that average grades do not correlate with the length of time spent on the computer and the code junkies tend to do poorly in their courses.

The symptoms, according to Reynolds, are lack of attention to subsidiary subjects, and non-attendance at seminars. "This code junkie finds the course too trivial for him and falls down because he has had too much unsupervised

Ada watchers play waiting game

ADA watchers have been anxiously trying to guess when the language will join Fortran and Cobol in the elite recognised by ANSI, the wing of US Department of Defence wielding most influence in world standard setting. First it was to be Christmas, then midwinter night.

Now a word from the world's leading lord of the language, Frenchman Jean Ichbiah, tells us that this February is the month.

Ichbiah, recognised by many as the inventor of Ada, is director general of Aisy SA, based near Paris, which is developing various compilers and teaching products for the language. It has also been preparing the manual for the imminent ANSI standard.

"We are putting the final touches," Ichbiah said last week. The late changes were mainly in making the manual clearer and more machine independent, he explained.

A total of 5,700 comments were received on the draft standard, including some from the UK Ada project.

This total surprised Ichbiah, as

did the quality of the comments.

Even the wrong ones helped improve the documentation by exposing obscure prose and lack of clarity in the explanations, Ichbiah says.

Ichbiah began work on Ada back in 1972, and in 1977 a team of his at CII Honeywell Bull was one of four chosen by the US Department of Defence to prepare a standard. The other teams came from SRI International, SoTech and Intermetrics.

Each of these submitted draft standards, Ichbiah's appearing on green paper. In 1979, Ichbiah's team was chosen from the four to take the language to the world, and since then Ada manuals have appeared with green covers. In 1980 Ichbiah left CII to form Aisy, which since then has been responsible for development of the ANSI standard.

Ada compilers for the CII HB, DPM7 and Siemens 7000 mainframes, and for the Motorola 68000 chip.

Shortly work is to begin on a version for the Intel 8086 chip.

Workplace is compiled by Philip Hunter

This will be developed into a version for the related 8088 on which the IBM Personal Computer is based.

Meanwhile in the UK various Ada compilers are being built as close to the ANSI standard as guesswork will allow.

PUZZLER

THIS week's alphabetic is really too long to publish! However, part of the problem can be set down in abbreviated form, so here it is:

HUNDRED
HUNDRED
HUNDRED
HUNDRED
HUNDRED
TEN
(50 times)

THOUSAND

There are 50 THENS one under the other, so the addition sum is "true" as written, apart from being mathematically valid when the correct placements of the 10 digits are determined.

See page 46 for solution.

February 1983

16TH WEDNESDAY

17TH THURSDAY

18TH FRIDAY

Commodore Computer Shows

It could be the most important event you've ever put in your office diary.

SOUTH WEST

King Arms, Dorchester, Dorset
County Hotel, Taunton, Somerset
Dragonera Hotel, Redcliffe, Bristol, Avon
Lansdown House Hotel, Lansdown Road, Bath, Avon
The Imperial Hotel, New North Road, Exeter, Devon
Lilleybrook Hotel, Gloucester Road, Cheltenham, Gloucestershire
Crest Hotel, Barnwood, Gloucestershire
Red Lion Hotel, Mildred Street, Salisbury, Wiltshire
Information Technology Centre, Oneil Road, Trow, Cornwall
Aster Hotel, Treherne, Plymouth, Devon
St. Michael's Hotel, Falmouth, Cornwall
Cotswold Computers, Station Road, Tetbury, Avon
Devon Computers, The White House, 39 Tynes Road, Fagington, Devon
JAD Integrated Services, 32 Western Approach, City Centre, Plymouth, Devon
Compucentre, Theatre Square, Swindon, Wiltshire
Bristol Computer Centre, 192 Wells Road, Bristol, Avon
South Coast Business Machines, South Coast House, Wimborne Road, Farnham, Surrey, Surrey

SOUTH AND SOUTH EAST

Pickered Motor Hotel, Brighton Road, Bournemouth, Surrey
Angel Hotel, High Street, Bournemouth, Surrey
Royal Victoria Hotel, 100 High Street, Bournemouth, Surrey
Hollyday Inn, Langley, Slough, Berkshire
Wexham Hotel, Palmerston Road, Winchester, Hampshire
Hollyday Inn, North Harbour, Portsmouth, Hampshire
Great Danes Hotel, Hastingbourne, Maidstone, Kent
Saxon Hill Hotel, Seven Hills Road South, Cobham, Surrey
The Red Lion Hotel, London Street, Basingstoke, Hampshire
The West House, London Road, Brentwood, Essex
Chequers Hotel, Brighton Road, Hove, East Sussex
Aldersley Hotel, 42 Brunswick Terrace, Hove, East Sussex
Crest Hotel, Eastgate, Hampshire
The Park House, 197 High Road, Boreham, Essex
Aerodrome Hotel, Crofton, Surrey
Thorpe & Vasey Club, The Eastern Esplanade, Southend-on-Sea, Essex
The Seaside Hotel, Southend-on-Sea, Essex
Eurocrist Hotel, Empire Way, Wembley, Middlesex
High Street, Richmond, Surrey
The Ridgeway, Enfield, Middlesex
The Dreyhound Hotel, Crofton, Surrey (10th only)
The Featherstone, Westwood, On the A10, Nr. Ware, Hertfordshire
Crest Hotel, High Wycombe, Buckinghamshire
The Clock Hotel and Restaurant, Welwyn, Hertfordshire
Waterside Centre, High Street, Richmond, Surrey
Hertfordshire, Hertfordshire
Bretton House Hotel, The Avenue, Luton, Bedfordshire

APOLLO REPROGRAPHICS
Unit 15A
West Station Industrial Estate, Spatial Road, Malden, Essex
Hawley Management Services, 14 Hemmels, London North Trade Centre, Baddley, Essex
Valon Store, 3 Eden Walk, Surrey
Kingston upon Thames, Surrey
Micro-Facilities, 75 Church Road, Egham, Surrey
Sironoma Mega Computers, 13 York Street, Twickenham, Middlesex
J. J. Computers, 192 Honeysuckle Lane, Queensbury, Stammers, Middlesex
Computer Plus, 47 Queens Road, Watford, Hertfordshire
Dataview, Porters House, East Bay, Colchester, Essex

GREATER LOHOOH

The Regal Hotel, 812 Queens Avenue, Muswell Hill, London N10
The Windsor Hotel, Aldwych, London WC2
Great Eastern Hotel, Liverpool Street, London EC2
Crystal Palace Football Club, Tudor Road, Hounslow, London SE25
Royal Westminster Hotel, Richmond Palace Road, London SW1
Carnarvon Hotel, 2 Hanger Lane, Ealing, London W5
The Bull Hotel, Upper Richmond Road West, East Sheen, London SW14
61/67 Computers, Newbury House, 22 Hatfield Road, Wembley, London W9
National Electronics Centre, London World Trade Centre, East Smithfield, London E1
Mining Link Computers, Abacus House, 53-55 Ballards Lane, Farnham Road, London E11
263-269 City Road, London EC1

MIDLANDS AND WEST MIDLANDS

Chester Hotel, London Road, Walsall, Coventry
The Regal Hotel, High Street, Watlington, Oxfordshire
Information Technology Centre, 429 Midsummer Boulevard, Saxon Gate West, Milton Keynes, Buckinghamshire
Oxford Motel Hotel, Wellesbourne Road, Oxford
Hollyday Inn, St. Nicholas Circle, Leicester
The Mount House Hotel, St. Mary's Street, Bedford
Regal Hotel, 75 Water Lane, Birmingham, West Midlands
Jondara Associates, London House, 200 Watling Road, Coventry, West Midlands

NORTH WEST

Lancashire County Cricket Club, Tuller Road, Old Trafford, Manchester
Manchester Marriott Hotel, Portland Road, Old Trafford, Manchester
The Village, George Street, Salford Park, Prestwich, Cheshire
Hollyday Inn, Paradise Street, Liverpool
149 Wigan Lane, Wigan, Lancashire
Midland Hotel, Morecambe, Lancashire

EAST ANGLIA

Saxon Inn, Thorpe Wood, Peterborough, Cambridgeshire
Ipswich Hotel, Ipswich Road, Ipswich, Suffolk
Ball Hotel, Walsgate, Peterborough, Cambridgeshire
Cambridge Arms Hotel, Cambridge
Hotel Halloway, Prince of Wales Road, Norwich, Norfolk
Z.R. (Computers), City House, 9 The Avenue, Lincoln

NORTH

Micro Business Centre, 17-19 Leiford Street, Wolverhampton, West Midlands
Micro Business Centre, 28 High Street, Sutton Coldfield, West Midlands

TRAFALGAR HOTEL
Preston New Road, Salford, Lancashire
Last Drop Hotel, Hospital Road, Bromley Cross, Bolton, Lancashire
The Crooklands Hotel, Crooklands, Marncliffe, Cumbria
Kerby Hotel, Burnley, Lancashire
Cambridge Arms Hotel, Cambridge
National Compelling Centre, The Mercury Road, Oxford Road, South Yorkshire
Hollyday Inn, 227 London Road, Sheffield, South Yorkshire
Micro Business Centre, Bay House, Lancaster Place, Leeds
77a Beverley Road, Hull, Humberside
Sheffield Computer Centre, 227 London Road, Sheffield, South Yorkshire
Micro Business Centre, 323 Calton Drive South, Latham St. Annes, Lancashire
Automated Business Equipment, Hersey House, Salford, Lancashire
Stockport, Cheshire
Aldersley Typewriter, Aldersley House, 59 Leeds Road, Bradford, West Yorkshire
Executive Reprographics & Business Consultants, 2/4 Oxford Road, Manchester

NORTH EAST

Dragonera Hotel, Newcastle Street, Leeds, West Yorkshire
Grimsby Crest Hotel, Grimsby, North Yorkshire
The Show Bule, The Fountain Precinct, Balm Green, Sheffield, South Yorkshire
The Palm Court Hotel, St. Nicholas' Cliff, Scarborough, North Yorkshire
Imperial Hotel, Junction Road, Jarnand, Newcastle upon Tyne
Springfield Hotel, Durham Road, Gateshead, Tyne & Wear
Swallow Hotel, High Street, Stockton on Tees, Cleveland
Way Way Hotel, Rotherham Road, Rotherham, South Yorkshire
Hollyday Inn, 227 London Road, Sheffield, South Yorkshire
Micro Business Centre, Bay House, Lancaster Place, Leeds
77a Beverley Road, Hull, Humberside
Sheffield Computer Centre, 227 London Road, Sheffield, South Yorkshire
Micro Business Centre, 323 Calton Drive South, Latham St. Annes, Lancashire
Automated Business Equipment, Hersey House, Salford, Lancashire
Stockport, Cheshire
Aldersley Typewriter, Aldersley House, 59 Leeds Road, Bradford, West Yorkshire
Executive Reprographics & Business Consultants, 2/4 Oxford Road, Manchester

WALES

Norfolk Hotel, Princes Drive, Colwyn Bay, Clwyd
Swansea Leisure Centre, Swansea, West Glamorgan
Rydydd Hotel, Rydydd, Carmarthenshire
Oreton Hotel, The Kingsway, Swansea, West Glamorgan
Celtic Manor Hotel, Cardiff, South Glamorgan
Office & Business Equipment, Executive House, Pierce Street, Deeside, Clwyd

SCOTLAND

Hollyday Inn, Argyle Street, Glasgow, Strathclyde
Howard Park Hotel, Glasgow Road, Kilmarnock, Strathclyde
Cardiff Hotel, Cardiff, South Glamorgan
44 Old Racecourse Road, Ayr, North Ayrshire
Blythswood Square, Glasgow, Strathclyde (10th only)
Dorcas Hotel, George Street, Edinburgh, Lothian (7th only)
The Embassy Hotel, Dalmeida, Edinburgh, Lothian
Plymouth Business Machines, 30 Northfield Place, Aberdeen, Grampian
Data Microsystems, Abbey House, 10 Bothwell Street, Glasgow, Strathclyde
Hollyday Inn, 227 London Road, Sheffield, South Yorkshire
Micro Business Centre, Bay House, Lancaster Place, Leeds
77a Beverley Road, Hull, Humberside
Sheffield Computer Centre, 227 London Road, Sheffield, South Yorkshire
Micro Business Centre, 323 Calton Drive South, Latham St. Annes, Lancashire
Automated Business Equipment, Hersey House, Salford, Lancashire
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Aldersley Typewriter, Aldersley House, 59 Leeds Road, Bradford, West Yorkshire
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To the Commodore Information Centre, 675 Ajax Avenue, Slough, Berks SL1 4BC. Telephone: Slough (0753) 79292.

Unfortunately, I can't rank any of the Commodore Computer Shows, but I'd like to know more about your new computer range, and how they can help my business.

☐ Business Enquiry ☐ Personal Enquiry

Name (Mr/Ms/Miss) _____
Position _____
Company _____
Address _____
Post Code _____
Telephone _____

051 001/144

Microimage terminal launch by Kodak

THE UK launch of the latest in its range of intelligent microimage terminals, the IMT-50, is announced by Kodak.

This terminal provides automated retrieval under microprocessor control for use in installations where computer assisted retrieval is required but the additional sophistication of a mainframe computer is not essential. The resulting installation provides a lower cost alternative to the full online system which will continue to be available in the form of the Kodak IMT-150 microimage terminal.

The new terminal offers 17 different search programs and is capable of two-level searches - "block and batch" or "batch and item." As a result it can accommodate a wide range of filing routines. Light high-quality lenses are available, ranging in magnification from 16X to 47X.

To use the microimage terminal,

the operator first interrogates the electronic index which can be maintained by either a minicomputer or a mainframe. The electronic index gives details of the microfilm magazine and the address of the required image. The operator simply inserts the appropriate magazine into the terminal, keys in the address and presses the "search" button. The Kodak IMT-50 terminal automatically locates the image and displays it on the screen. A paper copy of the image can be obtained.

In addition to controlling automated document searching, the terminal's microprocessor monitors a number of machine functions and provides the operator with feedback via an LED display on the keyboard.

Kodak (CW), PO Box 66, Kodak House, Station Road, Hemel Hempstead, Herts HP1 1JU. Tel: Hemel Hempstead 61122.



The Kodak IMT-50 microimage terminal.

Alternative to keyboard data entry

WEGO Computers of Caterham has launched a card reader. The 2000 series are optical machines, which provide the computer system with an alternative to the keyboard entry of data. Cards are marked with a pencil, pen or punched, then inserted into the machine hopper for entry to the computer. The reader may also read pre-printed data.

Three versions of the machine are available: the 2000/RS232 for use with any system with an RS232 input port, the 2000/Apple which has been designed for use with the Apple II, supplied with an interface that fits inside the Apple, and the 2000/Pet supplied with a connector to the user port of the Pet.

The machine has a hopper capacity of about 120 cards, with a maximum speed of 56 cards per minute. A continuous on demand feature allows the card reader to feed automatically once the data from the previous card has been transmitted on to the computer.

The price is £1,295 + VAT. Wego Computers, (CW), 22a High Street, Caterham, Surrey. Tel: (0883) 49235.

Full IBM compatibility offered

THE General Systems Division of Geac UK announces a range of Informer terminals. These terminals provide facilities of standard visual units but are packaged with a space in mind.

A typical Informer terminal weighs under 20 lbs, can take up little as 13in x 13in of desk space and the 9in diagonal screen displays 80 x 24 columns of text selectable to 32 x 16.

The IBM compatible range designated the Informer 370 system, comprises four models: a terminal and a cluster console offering a complete alternative to the IBM 3270 remote information display system at only 5% of the IBM size. The 370 system can be installed at a remote site or local using modem eliminators.

The terminals are available in configurations suitable for sensitive information retrieval, data preparation and general system work.

Informer also offers a standard 3275-2 emulator. Geac Computers (CW), Tel: 01-828 5235.

SOFTWARE MONTH

'Modern computer buyers are beginning to demand a system that can be bought, plugged-in and played as simply as a hi-fi'

Users are plugging in to hi-fi phenomenon

FOR the past 20 years, two major characteristics have dominated the history of computing: falling costs and rising power. The effect has been an almost complete reversal of the attitudes held by the major suppliers towards the two products of hardware and software.

In the beginning, because of the all-consuming cost of the hardware itself, manufacturers concentrated more on producing the machine than on the wherewithal to use it. But now, more and more customers are able to use more and more power, and software has become an integral part of computer marketing.

The growing importance of software as a trend is visible throughout the major manufacturers. In the UK, ICL has made a complete reversal, from ignoring software suppliers to courting them. In smaller systems, Digital Equipment has released a range of personal computers built around the concept of software availability: half of them can access the enormous pool of CP/M software, while the other half can make use of existing PDP/11 software.

And IBM is no exception. Recent years have seen a spate of improved products, ranging from SSX/VSE and SQL/DS to vastly improved versions of CICS. Some commentators suggest that IBM is beginning to set its sights on a new and wider market, and that in doing so, it will wage war on the numerous third party software suppliers.

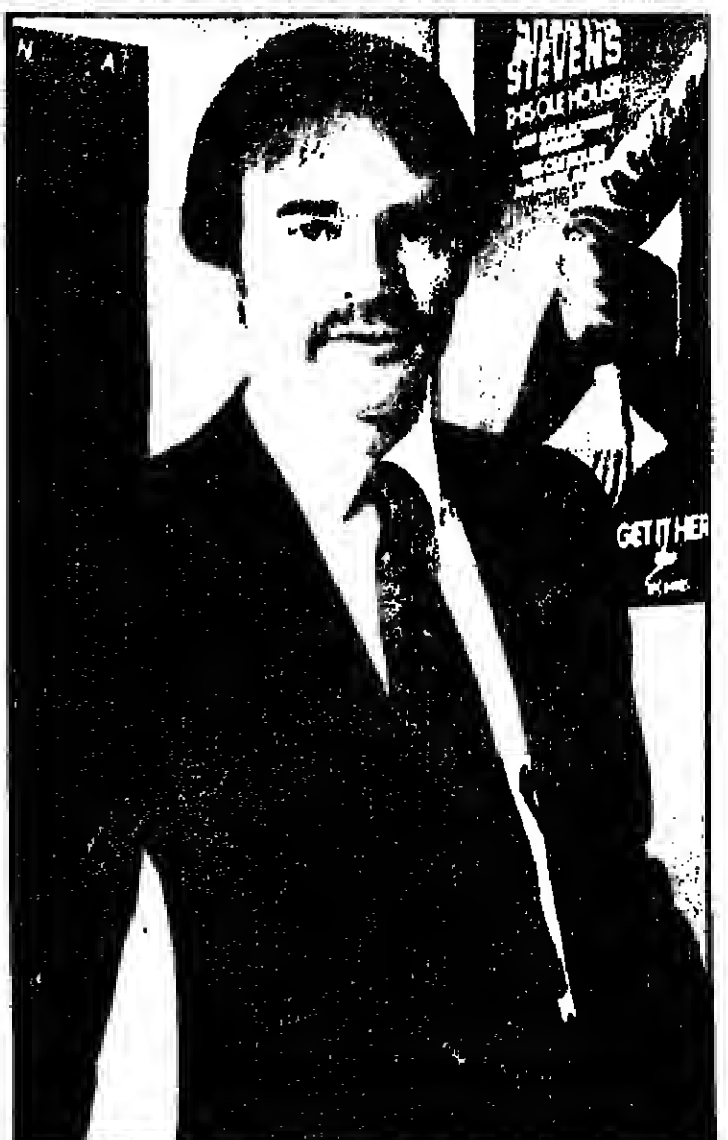
Liam McKenna, IBM UK software product manager, sees it differently. He points to the increasing difference in the power to price ratio within modern computing and suggests that IBM is not so much seeking a wider market as responding to the demands of a growing market.

"As computing power gets cheaper," he says "new and smaller companies are now buying what, a few years ago, we would have sold to a larger company. These new customers have different requirements from our earlier customers - they can't afford to fund the massive programming schedules demanded by the earlier mainframes."

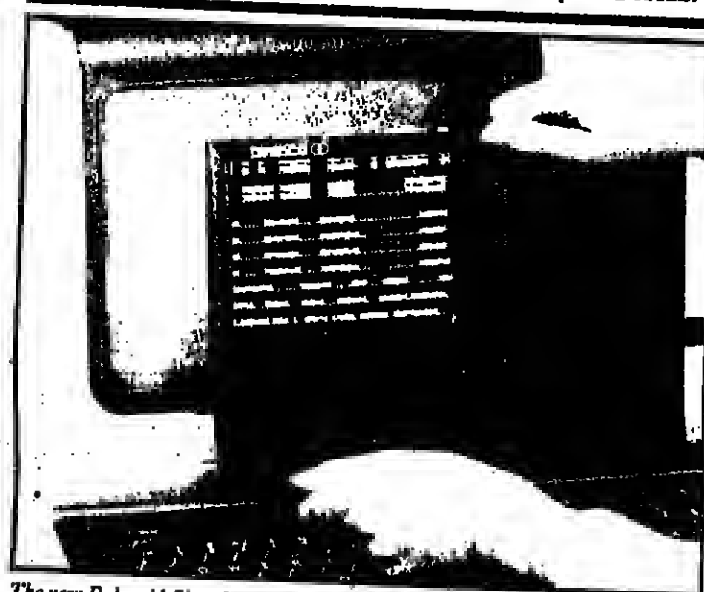
"In many cases today, it is the businessman who buys - and uses - the computer. Small Systems Executive (SSE) is IBM's provision of an easy software route for the new style of customer that is now looking for computer solutions to business problems."

It is, in fact, another example of what has been described as the "hi-fi phenomenon" - modern computer buyers are beginning to demand a system that can be bought, plugged-in, and played as simply as a hi-fi system.

Turn to page 24



WATSON... "IBM has at last seen the light"



The new Polaroid filter from Immac.

Filter cuts VDU glare

GLARE on a VDU screen is one of the quickest causes of fatigue. This presents a major problem for users, so special glare filters were developed to reduce the glare and enhance the contrast. These are now available through Immac, under the name Glare Sentrys, for general use on a wide range of the most popular VDU screens.

The principle is that the circular polariser (manufactured by Polaroid) is made up of two layers. The top layer is a polarising filter and the second layer rotates the plane of the new polarised light by 45°.

When it is reflected and tries to re-

emerge, it is again rotated by 45° giving a total twist of 90°. The polarising filter will then absorb the glare. On the other hand, light from the display only passes through the filter once and emerges clearly with improved contrast.

The Glare Sentry filters mount easily on to VDU screens with adhesive strip. They are available for all popular makes of VDUs such as the DEC VT100 and cost £95.

Immac UK (CW), Astmoor Industrial Estate, Runcorn, Cheshire WA7 1QG. Tel: (09285) 67551/2/3.

COMPUTASTARS

Chance to shine in the DP Olympics

by Andrew Thomas

ONLY three weeks to go before entries close for Computastars '83. This year's DP Olympics for men and women working with computers starts in Birmingham on April 30, and culminates in the UK final at the same venue in July.

Winners will be eligible to go on to the European final later in the year, where they will be up against the cream of the Dutch, Belgian, and German DP industries. Entries are open to men's and women's teams of between three and five members who are prepared to run, jump, throw and lift for the honour of their companies.

The cost of this honour is £37.50 per team for the main competition, with an additional £20 payable for teams reaching the European final.

Alongside the main competition runs the tug-of-war contest, Computastars 1 omitted to tell you last week the entry fee for this battle of superstrength, but I can now reveal that the cost is a paltry £10 per six-person team. Men's and women's teams are eligible.

Full details of the competition, and the list of rules, can be found in last week's Computer Weekly, or can be obtained from the organisers at the address on the entry coupon. Please direct all enquiries to the organisers and not CW.



Sponsored by Computer Weekly

UK dates

Birmingham
Saturday April 30
Enfield Sunday June 5
Enfield Sunday June 19
Barnsley Saturday June 25
Birmingham (UK final)
Saturday July 23



Clive Bennett of Heywood & Partners winning his heat of the 100 metres at Barnsley last year.

COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastars/Computatug 1983 and would like to enter

Main competition Men's teams Women's teams
Small units Men's teams Women's teams
Veterans Men's teams Women's teams
Computatug Men's teams Women's teams

Names of team(s)

Company

Address

.....

.....

.....

Name of contact

Telephone..... Extension

Signature of DP manager or equivalent authority

Position held

We would like to compete in the following region:

NORTH BARNSELY

LONDON (ENFIELD)

MIDLANDS (BIRMINGHAM)

SOUTH (ENFIELD)

please circle appropriate region

Enclosed is £..... to cover the entry fees for the team(s). Cheques should be made payable to Computastars Ltd.

In all matters relating to the rules or conditions of entry, the decision of the organisers is final.

Please send entry form and fees to Computastars, 117b High Street, Croydon CR0 1QG. Telephone 01-688 6690

Jaguar adds Telepac node

THE Telepac X25 packet switching node is the latest product in the range from Jaguar Communications.

Designed and built in the UK, the Telepac enables users to build a medium-scale communications network fully compatible with CCITT X25 Level 3 standard. Jaguar says this compatibility benefits the user by enabling his existing equipment to accept calls from and make calls to PSS/PPS.

The Telepac has eight synchronous ports any of which may be configured either for X25 use or for the link protocol of the Codex 6000 series of statistical multiplexors. The user is thus able to build a cost-effective network combining asynchronous terminals and computer ports.

Jaguar Communications (CW), Elton House, London Road, St Albans, Herts. AL1 1JL. Tel: 0438 32393.

System 34 screen prints

RENTAL Research has announced a screen printer for the IBM System 34 and 38, to complement its range of specialist devices for attachment to IBM systems.

The 2220 screen printer solves the long outstanding problem of obtaining rapid screen prints from the 5251 display station.

Use of the 2220 does not restrict the number of devices that may be placed on a line, it being possible to have seven 5251/9999s and seven 2220s on the same port of a System 34.

In addition to the forms tractor, the 2220 is supplied, as standard, with a friction feed which makes it an ideal device for point of sale applications producing A4 invoices, statements, etc.

Rental Research (CW), 2 London Wall Buildings, London WC2E 7RN. Tel: 01-628 0341.

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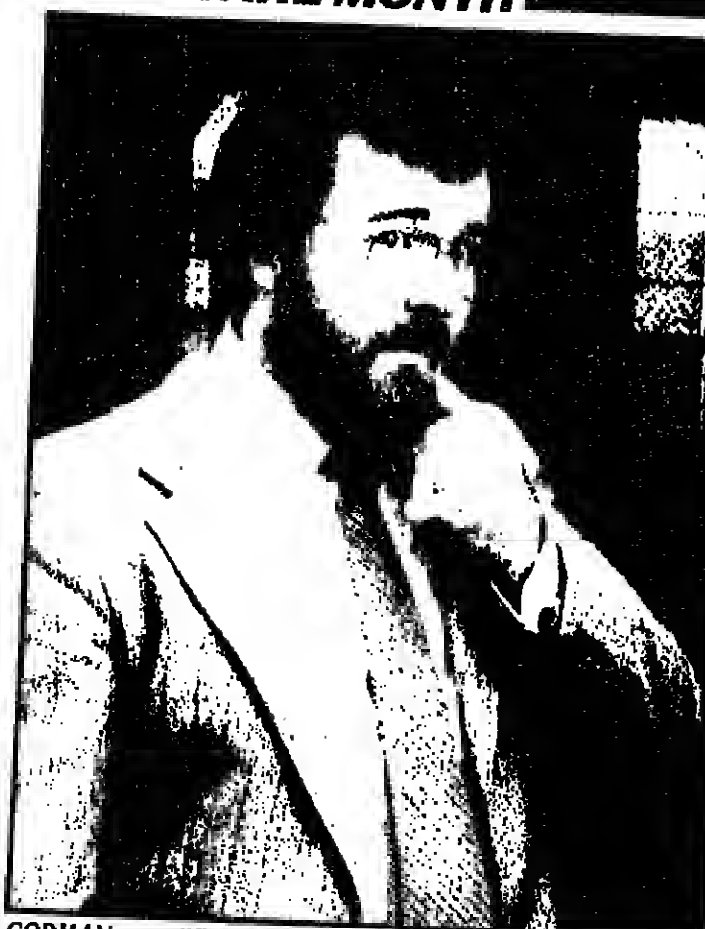
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National Computing Centre, Manchester
3/4 March 1983
An SERC-sponsored conference.
Registration: £57.50 inc. VAT

Information/Registration: SERC/DCS Industrial Co-ordinator
64 Newmarket St. London W1A 4SE Tel: 01-636 5440

The future of computing lies in the use of multiple computers co-operating in problem solving. The Science and Engineering Research Council has supported a major research programme in this area. The research has borne fruit. To help ensure this research is put to use, the SERC is sponsoring an industrial conference - a meeting between researchers and industry - presenting present research results in the context of a more general review of distributed computing issues. These include sessions on:
* The Future of Local Networking
* New Architectures and the Fifth Generation
* Multiprocessor Implementation and Applications.
Speakers include both leading researchers and industrialists already closely involved.

April 1st 1983



GODMAN "Recent releases show thousand monkeys approach."

Plugging in to hi-fi phenomenon - From page 23

'Thousand monkeys approach creeping in'

SSX/VSE (Small Systems Executive/VSE) was announced by IBM in November 1981. It is an operating system that goes further along the conceptual route begun by the SPO/VS, which were themselves self-documentary systems modules that attempted to allow inexperienced users to install a DOS/VSE system. If SPO/VS failed, SSX, to a certain extent at least, succeeds. It is a system that can be installed quickly by unskilled personnel, and is indeed aimed primarily at the standalone user with limited skills.

According to McKenna, it is an example of IBM "driving down a 'case of use' route: SSX uses simple methods to achieve complicated results."

This "ease of use" is largely achieved by limiting the generation options and improving user aids. For example, no JCL knowledge at all is required. Further, operator control is made

simpler by using VSE/OCF to intercept systems messages in order to suppress some, to answer others, and to translate many of the remainder into something more meaningful.

The applications package to sit on top of SSX may come from IBM or a third party supplier. One such product is MSA's SSX/System 43 suite of nine interfaced accounting packages.

MSA is one of the world's largest independent applications software companies, modestly claiming to be "... in step with IBM. And ahead of the rest!"

Since 1965, the company has installed over 6,500 packages in over 4,000 customer sites. Now it sees SSX as an important step forward for both IBM and itself.

Graeme Watson, a systems consultant with MSA (Management Science America), explains the reasoning: "Despite being comprehensive and fairly robust, IBM

mainframe operating software has long been viewed as unnecessarily complicated and unfriendly. Armies of systems programmers, JCL writers, data controllers and the like, have been kept busy for the past 15 or so years persuading hardware in the required way. And this single requirement for high calibre, well paid and often scarce DP professionals is surely a primary cause for the dissipation of many potential new customers from joining the IBM family of users.

"Now, however, it seems as if IBM has at last seen the light with its development and release of SSX/VSE."

Evidence to date suggests that IBM has got it right this time with SSX, and that surely must spell the end for DOS. I doubt if many people will regret its passing

SSX is designed to take the philosophy of SPO - IBM's Systems Installation Productivity Option - one step further. In 1979, when DOS/VSE first arrived on the 4300 series, many users found that they still needed systems expertise despite the SPO approach. Xephon Technology Transfer, a leading IBM consultancy, reported: "It is not true, however - as some over-enthusiastic IBM DP sales engineers implied soon after the DOS/VSE announcement - that SPO/VS would allow someone with no experience to install DOS/VSE systems."

"But now DOS/VSE itself has been further refined into SSX/VSE, and this time, according to IBM, the implementation really can be achieved without a systems programmer - and in less than two hours."

SSX/VSE (Release 1) was first shipped in May 1982. Its major objective was to provide a self-contained and pre-generated VSE operating system for the 4321 and 4331 systems, in both standalone and distributed data processing environments; that is altogether easy to install, easy to use, and, above all, stable.

The stability is necessary because IBM does not intend to provide regular updates. Any problems are fixed by object module replacement for items such as prompts, or by a complete SSX replacement for other components.

"The claim of two hours to install SSX has for once, and surprisingly for IBM, been shown to be unusually modest," went on MSA's Watson. "The first commercial installation of SSX in Europe took closer to one hour than two, and was performed by someone with only three weeks' IBM experience." This installation included MSA's System 43 applications software, and was performed by an ex-Hewlett Packard programmer, Cornelius Lukins, whose only experience with IBM was a short training course. The company in question is Biopak Nederland BV, the Dutch arm of a multinational manufacturer of liquid packaging cartons.

Seven Amnot, group DP manager of Biopak's Norwegian parent company, explained: "We needed to implement systems quickly and easily, mostly because the company has expanded rapidly in Europe over recent years. The combination of the System 43 products with IBM's SSX seemed ideal because it meant we could be up and running with the minimum amount of time and effort."

"We picked SSX because it is a tool which will allow applications to grow with our business. We can

grow from a 4321 to a 4340 without any software conversion problems."

Watson believes that SSX is a way forward for IBM, even to the extent that "DOS is dead - live SSX!"

Release 2, announced in October 1982 and due for release a month will extend the support system in areas of batch support, networking and file support.

"The most significant feature," says Watson, "is the turn out to be the ability to run SSX under VM. Before the date," he concluded, "that IBM has got it right this time with SSX, and that surely

spell the end for DOS. I doubt if many people will regret its passing."

Praise for SSX, although widespread, is not, however, universal. Synapse Computer Services, an independent IBM consultant, Release of the 4300 mainframe to an early change of equipment within the company, and in the Synapse systems software management service was made. This was to fill a vacuum created by a rapid reduction in the number of computer installations caused by the change of hardware.

To date, Synapse has completed little demand for SSX. It spent a lot of time in early 1982, he continues, "we have sought to stress that CICS, and IMS, are the true interfaces to IBM systems. The real area for competition with IBM is not here but in the applications software to run on top of CICS."

This is a view shared by Cliff Smith, director of sales with Computer Associates, a leading IBM software company (whose latest product, the CA-Scheduler, is an automated scheduling and operations management system, needless to say includes a CICS interface).

"There is no real alternative," he maintains. "CICS is the de facto TP monitor for IBM equipment, and what we are seeing now is a polarisation towards the one system: its competitors are falling by the wayside."

The latest market survey from Xephon Technology Transfer (*The IBM Mainframe User*) provides startling corroboration. Over 90% of the current IBM users that took part in the survey and have a TP monitor use either CICS or IMS/DC. And almost 80% of those use CICS.

In a similar survey in 1981, only 86% of the users used a TP monitor. "In the past five years or so," concludes the Xephon report, "users have tended to abandon the independent monitors and return to the 'safety' of IBM's own software. This is probably not because IBM's software is terribly good (though it has improved immeasurably), but because, with the growth of interactive applications, the TP software has become central to many users' day-to-day production work - and, correctly or incorrectly, users tend to see independent software as a 'high-risk' option, which they are not inclined to adopt for their more critical systems."

Smith offers two further reasons for the ultimate and inexorable success of CICS over its rivals. The first is simply that it is not so much the superiority of IBM's marketing "that will squeeze out the CICS alternatives."

The second is the precise reason that has prompted his own company to specialise in the produc-

SOFTWARE MONTH

Improved CICS scares third party suppliers

CICS (Customer Information Control System) is IBM's mainline TP monitor. Its appalling track record led to the rapid development of third party competitive software, and indeed many an IBM software house owes its very existence to the poor quality of such early IBM software.

In recent years, however, CICS has been improved to such an extent that some third party suppliers fear that they are slowly being squeezed out by IBM. This may be true.

"They are competing at too low a level," declares Liam McKenna, IBM UK software products marketing manager.

The bugs that appeared in the early 360 versions, which he readily admits were "horrific," have long since been eliminated. "Since 1975," he continues, "we have sought to stress that CICS, and IMS, are the true interfaces to IBM systems. The real area for competition with IBM is not here but in the applications software to run on top of CICS."

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IBM wants no rival database systems in its big installations.

entire database with a single online update that generates dozens to hundreds of extra I/Os. The answer is clearly for any new user to keep his database design as simple as possible, and in this way develop a reasonably efficient, reliable and easy to use database.

The main third party competition comes from Cullinane's IDMS (Integrated Database Management System); from Software AG's Ada-

bas (Adaptable Database System); and Cincom's Total. This latter is the most successful to date, probably because, unlike some of its rivals, it does not attempt to offer all things to all users.

Complementary products being developed by Cincom include a relational superstructure and a query language. IDMS is the only one of the three that adheres to the Codasyl standards, and includes, perhaps because of this, some advanced structural capabilities. Also from Cullinane is what is claimed to be an advanced data dictionary, and a query language called English that attaches to IDMS.

Finally, Adabas is the newest of the three, and leans more towards a relational approach than any of its rivals. It, too, can combine with a data dictionary, but there is as yet no specific query language. In-

stead, a fairly high level programming language called Natural can be used for the more simple ad-hoc database enquiries.

But for the future, McKenna is quite definite in his views. To begin with, he virtually dismisses alternative DBMSs; which is unsurprising for the representative of a major company that has always viewed rivalry, especially in the database area, with particular distaste.

Of IBM's own offerings, he says, "VSAM is not an alternative in IBM's future database developments. VSAM is not a database: it's a Virtual Sequential Access Method. If he wanted to the user could write his own database and then use VSAM to access it."

VSAM has been IBM's recommended database management system since the early 1970s. But it works with, and not instead of, a database. It is, for example, the only disc access method to support the DL/I database management system.

"DL/I," continued McKenna, "is our recommended database for DOS users, and IMS is our recommended product for MVS users."

"To summarise, in the combined area of TP and DB, we would recommend that DOS users employ CICS and DL/I; and that MVS users employ either CICS and IMS/DB, or IMS/DB and IMS/DC."

"SSP? IT'S A DODDLE!"

The introduction of the new Statutory Sick Pay legislation is going to create enormous problems for Data Processing Managers. And those problems are going to fall right in those areas that are old favourites of DPM's everywhere, payroll and personnel.

You may feel that you've got SSP sorted out. Or that it's not your problem, but that of the payroll or personnel department. Or that it really doesn't represent a major problem at all.

Or perhaps you're hoping that one way or the other you're going to be able to muddle through.

Well, with respect, you're wrong. We can say that with some confidence, because at Peterborough Software, we've been working on SSP and its problems for a couple of years. Ever since it was first mooted in Parliament, in fact. So if anybody can take an authoritative view of SSP, we can.

For instance, we can be certain that if you've been attempting to develop your own SSP system in-house, you won't have been completely successful. (And if you have been, we'd like to hear from you, because it's taken us a great deal of time, effort and several attempts to develop our software solution.)

We know that you're going to come under pressure from both your payroll and personnel departments to provide answers to their problems. And that your payroll processing and personnel programs are going to have to interrelate as never before. And that you simply won't be able to rely on modifying your existing payroll and personnel systems to meet the statutory requirements of SSP.

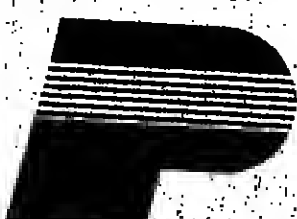
Naturally, we feel that you should examine our software solution to SSP. Because we know it works. Based on

our already proven Unipersonnel package, it's on-line and user-controlled, and interface not only with Unipay (our own payroll package), but with any other software you may be operating.

But more importantly, we feel that you should encourage your payroll and personnel people to learn more about their (and hence your) SSP problems.

To which end, we're staging a series of seminars to create a full understanding of SSP, its problems and implications. And more importantly, to provide an appreciation of the solution. Your payroll and personnel colleagues would certainly benefit from attending, as indeed you might yourself. The seminars are free, there's no obligation, and we really do think they provide a very valuable insight.

In addition, we've produced a comprehensive video training package, which provides not only a full analysis of the workings and implications of SSP, but a clearly detailed model computer solution. This unique video package is available only from Peterborough Software and provides an invaluable teaching and reference tool for payroll, personnel and DP staff at all levels. Given the problems that SSP could give you, it represents superb value at £750 plus VAT.



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April 1983

DP departments must prepare now for the PC

OVER the last month, I have been evaluating the IBM Personal Computer, and looking at how it is likely to be used in the corporate environment. One thing is certain - DP departments had better start preparing now. Users need a lot of support. Today, this is provided by importers such as Ferrari Software and Electronic Office Services, but before long, DP will probably have to take over the task.

SOFTSELL

The first thing I looked at was how the PC will be used within corporations. Most of the literature provides a lot of detailed technical information, such as its use of the Intel 8088 chip, and how the basic supports 200 by 640 pixel high-resolution graphics. Clearly, you can't draw many useful busi-

ness conclusions from this sort of data.

For the next year or two, the main corporate applications will be few, and fortunately comparatively simple. Bob Woodland, chairman of Feltham-based Ferrari, explains: "In order of popularity, they're spread sheets and word processors, followed by personal database systems, business graphics, and then communications - especially 3270 and Async terminal emulation, and batch transfer of text and data between micros or micro and mainframe."

There are a couple of surprises regarding what people won't be much interested in doing. In particular, programming is not of great interest. Also use of traditional accounting applications, such as those provided by Peachtree, Tabs, and Systematics International, will be very limited in large corporations.

Much of the software needed is already in place, provided either by IBM or from third parties. Software is taking longer (see Figure 1). Unfortunately, in their frantic hurry to release PC packages, vendors are severely compromising their QA standards. Bugs, poor and confusing documentation, and unnecessary difficulty in use, are

the order of the day. Woodland correctly points out that such problems, however, are common for a new machine, and that the passage of time will cure them. But certain other problems will not go away.

Professional computer staff are and will be needed to provide the solutions.

Don't suppose that because the PC is a personal computer, it can be installed by the users themselves. You need a lot of technical know-how to do this, as shown below in "Concepts and know-how."

As with most corporate micros, initial PC usage is generally comparatively simple, but as users become more familiar with their applications, they become more demanding. Tony McLaren, managing director of City-based Electronic Office Services, finds that users need help on complex

Spread Sheets: Visicalc, Supercalc
Word Processing: WordStar, Easywriter, Visiword*
Database: PFS, DBMaster, VisiFile, DataStar, Graphics: Visi Trend/Plot, PFS Graph*

Figure 1. Availability of some major packages for the IBM PC. Items with an asterisk are due for release by second quarter of this year; others are available now.

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David Ferris is a software industry consultant based in San Francisco and London. Covering technical and marketing issues, he assists hardware, software and venture capitalist firms.

Package immaturity

WORDSTAR is the market leader among microcomputer word processors, and for good reason is widely regarded as an excellent and powerful product. It has recently become available for the IBM PC, and is selling very well. However, the PC version has certain shortcomings which reflect the low quality assurance standards common among PC packages:

Code bugs. Bug reports are common among WordStar PC users. For example, the first letter I passed to the spelling checker caused an unrecoverable crash.

Documentation bugs. These vary from instructions using non-existent switches to incorrect descriptions of procedures that simply don't work.

Poor tailoring to the hardware. For example, help screens and most of the documentation make no reference to the special function keys and the numeric key pad, even though the software itself takes advantage of these additional keys.

Confusing, ambiguous, or misleading instructions. For example, "replace page 8 of Table Of Contents" actually means "replace the eighth page, page XIII"; or you're told that you need three diskettes to run the spelling corrector when in fact you often only need one.

Concepts and know-how

HERE are some of the concepts and know-how you'll need to get your IBM PC working.

1. The varied world of diskette formats - for example "hard-sectored versus soft-sectored" diskettes, and Osborne CP/M versus IBM 5 1/4 inch standard PC format. Choose the wrong one and you'll be in trouble.
2. Formatting diskettes - preparation of blank diskettes.
3. Special printer characteristics. For example, whether a control-L character must be sent to insert line feeds; page length; how to inhibit premature offline messages by putting sticky tape over the printer sensor.
4. Terminal control characters. For example, what character must be sent to clear the CRT screen.
5. Use of a text editor.
6. Set up of JCL files to automatically execute on power-up.
7. Slot number on processor bus.
8. ASCII files, DJV format files.
9. Installation of CP/M and clock processor boards.
10. Copying, backup, and recovery of diskettes.
11. Familiarity with the individual software packages required by the user, to set up an initial sample application tailored to the user's needs. For example, a Visicalc projection, a system list maintenance system, or a mail-mailing word processing system. Someone has to help the user set up the system. This requires knowledge of a mass of poorly co-ordinated information. Today, the computer dealer provides this, but soon this charter is likely to pass to DP.

IBM User?

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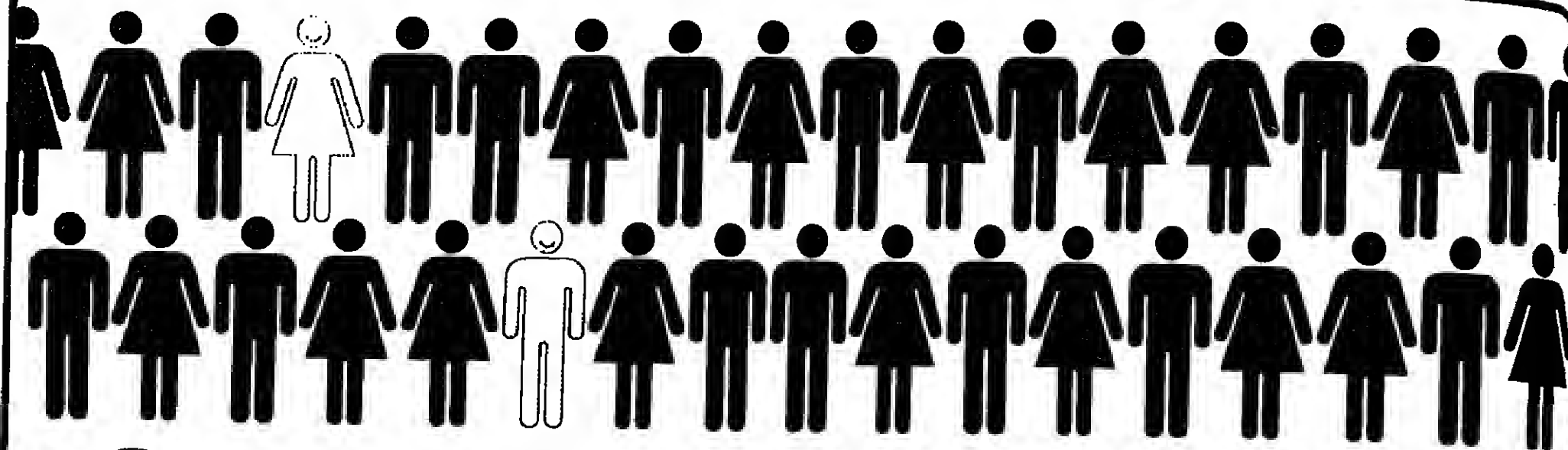
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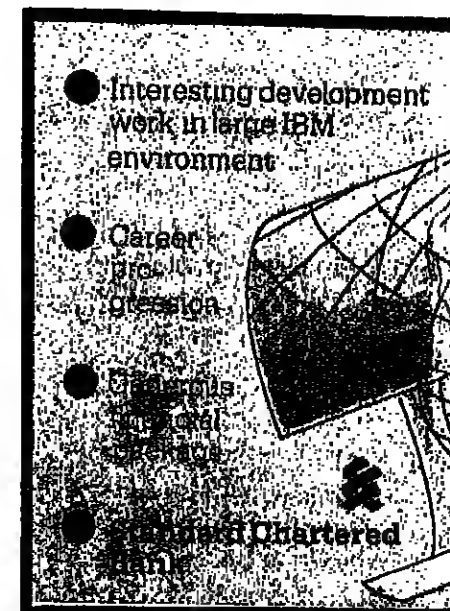
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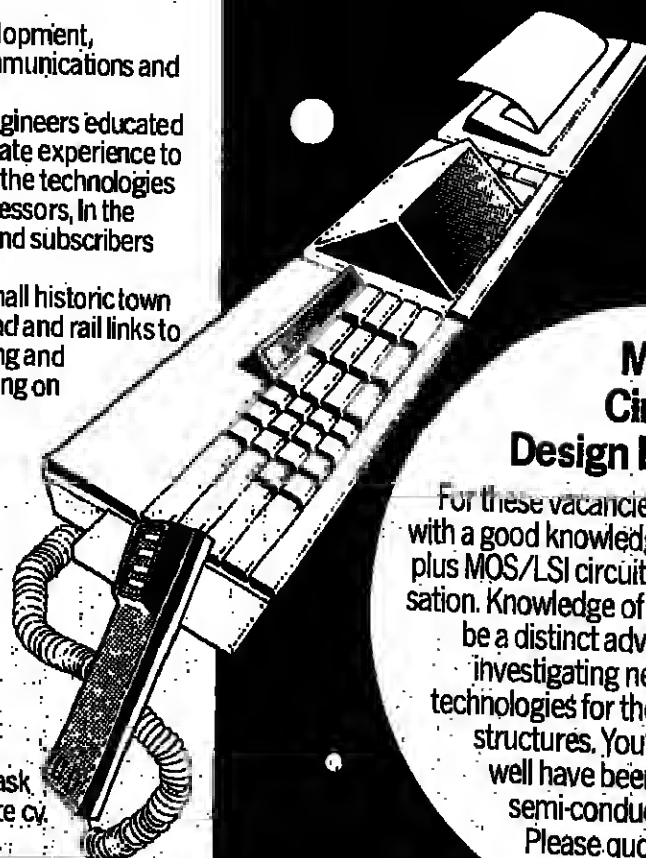
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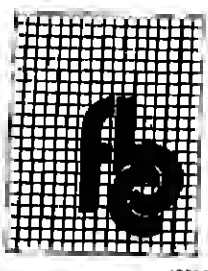
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LOCATION: SLOUGH

JAS12/1



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c£9,000

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LOCATION: ESSEX

JAS12/2

dp

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LOCATION: ESSEX

JAS12/3

S

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LOCATION: WEST LONDON

JAS12/4

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LOCATION: LONDON

JAS12/5

dp

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JAS12/6

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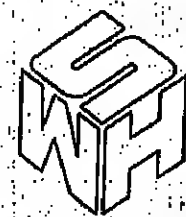
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- IBM COBOL with Adabas
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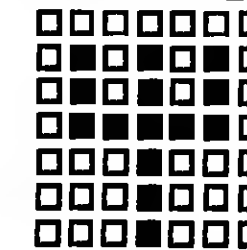
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(2536)



SOFTWARE and SYSTEMS SALES PEOPLE

MicroPro International Limited, one of the world's leading microcomputer software suppliers and creator of the world-famous Wordstar® package, are expanding their UK operation.

Consequently outstanding opportunities to expend your own career will be likely if you are experienced in software and systems selling, preferably with knowledge of the CP/M market.

Salaried, whilst negotiable, will be in the top bracket and early appointments are envisaged.

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MicroPro

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31 Dover Street, London W1
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(2532)

A significant opportunity for a Microcomputer Specialist...

Our client is a recently created division of a major British high technology company which is expanding at a dramatic rate. An important aspect of this expansionist philosophy is the creation of the position of Systems and Software Specialist.

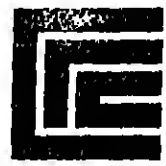
We are looking for a computer professional to become the centre of microcomputing expertise in the division. This significant appointment presents the successful candidate with the opportunity to develop divisional policy on microcomputing, agree and implement standards for information processing, and provide programming support to user departments. In addition to these key tasks you will need to cover a wide range of mini/mainframe applications from design through to implementation and training.

The successful candidate must have up-to-date knowledge of microcomputers

and programming and analysis experience, ideally using both micros and mainframes. Experience of C/P/M based software packages is a requirement. This is not a backroom job so candidates must be able to influence people and to communicate lucidly at all levels.

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To apply, in the first instance either send a curriculum vitae or telephone for an application form quoting reference SS/CT. Please address your replies to John Graham, who is advising the company on this appointment. This position is open to both men and women.



Cambridge Recruitment Consultants

1a Rose Crescent, Cambridge CB2 3LL. Telephone: 0223 311316.

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Following the recent successful launch of Combar, a major new software product in the computer-based training field, we require a self-motivated and ambitious young Sales Professional to help capitalise on the enormous potential of this product.

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Please contact: Mr Ian Inglis, Marketing Manager, Mills and Allen Computer Consultants Ltd, 1-4 Langley Court, Long Acre, London WC2E 9JY. Tel: 01-240 1307.

(2633)

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A lecturer is required to be part of a small group teaching a course introducing computers and systems analysis which the College is planning to run for a local employer.

The course is to be run as part of the M.S.C. Training in Computer Skills programme and is intended to lead to the City & Guilds Basic Certificate in Computer Programming.

The system used will be DEC 11/23 multi-user multi-tasking systems.

The lecturer appointed would be solely involved in the above course and would be employed for about 10 hours per week for 16 to 18 weeks during the period April to July 1983.

Times of employment would be during the day but would be arranged as far as possible to suit the person appointed. The current rate is £10.12 per hour. For further details and application forms, apply to the Clerk to the Governors, Cocksbury Road, Chippenham, Wiltshire SN15 3SD.

(2452)

BASIC-PLUS PROGRAMMER

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BASIC-PLUS PROGRAMMER

who will be involved in both development and maintenance activity. This successful candidate will join a small but highly motivated team within which there will be considerable scope for initiative and originality.

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Terms and conditions of employment within Goldal Focused are competitive and would be expected from a group of our size and an attractive salary will be offered with this post.

Should you wish to be considered for the appointment, please send full details of your education, work experience and current salary to:

John Parr, Personnel Manager
C/O Goldal Focused & Son Ltd
Brookfield Drive, Aintree,
Liverpool L9 7AW

(2441)

LONDON BOROUGH OF HARINGEY TOTTENHAM COLLEGE OF TECHNOLOGY

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Required for the College Computer Unit. The successful candidate will have at least an H.N.C., H.N.D. or 6-Sole Computing or equivalent qualification and will preferably have an experience of UNIX, C, and PASCAL. A knowledge of RSTS/E would also be considered useful. The post will involve a variety of work including program operations management and user advisory/consultation. Salary scale: £3,398 to £5,822 per annum inclusive of London weighting.

Application forms and further details from the Principal (003) returnable within 14 days of the advertisement.

(2467)

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Eve (040381) 2049

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The hardware consists of a Honeywell Level 66 DPS 52 Mainframe with distributed Computer Automation SyFA mini computers.

The successful applicant will have a Honeywell operating background, probably currently a shift leader in a medium/small installation or senior operator in a larger one. The starting salary and allowances will be up to £8,562 per annum. Other benefits include a subsidised house purchase scheme. Assistance will be given with relocation expenses.

Please write giving details of age, experience and current salary to: Mrs. B. Dean, Assistant Personnel Superintendent.

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Currently, we require a Software Engineer to join a team developing products for acquisition and control systems.

Applicants should have at least two years' experience of operating systems and micro assembly programming, preferably on PDP/11, Spectrum of C, Pascal or Fortran would be an advantage.

Please write or telephone for an application form to:

Mr K. J. Bell, Kratos Computer Systems Ltd, Wilton Industrial Estate, 87/89, 87/89 D.V. Tel: 0706 812131, 0706 812131.

(2488)

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★ You'll probably know who we are.

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Richmond
Surrey TW9 0AG

(2504)

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£8,000 circa

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The person sought to assist in this challenging opportunity will be joining an enthusiastic compact team and help enhance long-term career prospects.

Applicants must display analytical and methodical approach, with competence in systems design and programming and implementation. At least one year's experience in each. A working understanding of the production and commercial functions is a distinct advantage.

Please send full C.V. and request an Application Form from:

Personnel Executive,
GUILFORD KAPWOOD

2488

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This is your opportunity to join Storage Technology, world leaders in the design, manufacture and supply of IBM compatible data storage products.

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That is why we need customer engineers who are a cut above the rest - high performers to complement our reputation and our success.

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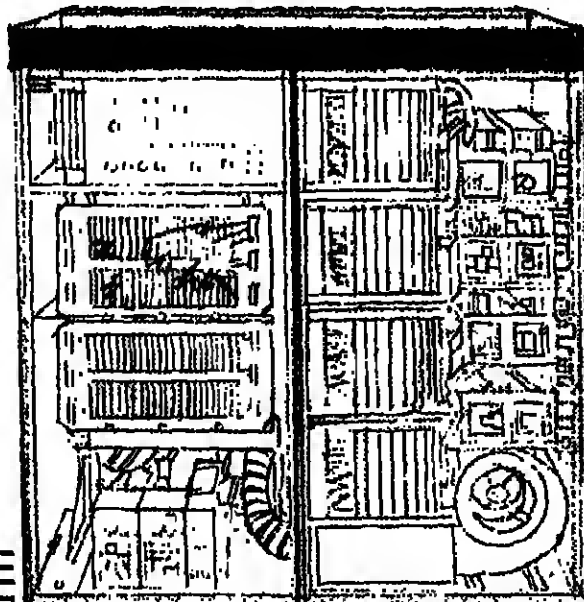
Substantial growth in our installed base in the UK means expansion of our field service

teams countrywide. Many opportunities exist in London and the South and we also have openings in the Midlands and the North.

If you have a good knowledge of IBM and/or IBM compatible systems and peripherals, specifically tapes, disks and printers; if you can combine technical ability with good customer relations skills, we would like to hear from you.

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UNITED ARAB EMIRATES

SYSTEMS ANALYST/ PROGRAMMER

Datamation Systems is the largest and longest established bureau and software house in the United Arab Emirates. The staff of over 90 employees provide for its large client base a wide range of data processing services over various types of hardware.

In our planned expansion programme, we now have an excellent opportunity for someone with strong experience in systems specification, design and implementation. A detailed knowledge of RPG II and IBM System 34 is also essential.

In our growth plans, there is considerable potential for the right applicant.

This is a permanent position with the usual accommodation, leave, travel conditions, etc. applicable in this area.

Applications with cv (treated in strict confidence) should be addressed to:

Datamation Systems
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Duration: 12 months

Start date: March

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- Siemens experience
Duration: 12 months

Start date: March

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The complete reorganisation of our Client's European operation, to reflect a new product launch, has necessitated the recruitment of three Software Specialists for their Headquarters in Twickenham.

The Company manufactures, develops and markets information processing and communications products, for use within a wide range of data communication terminals, PABX's and networks.

Utilising DEC PDP11 equipment under RSTS/E as a development tool, products are based currently on Motorola 6802 microprocessors, utilising BASIC+. Current developments include the introduction of Motorola 6809 microprocessor based systems utilising the 'C' language.

Applicants for the above positions must possess solid technical experience in some of the following areas:

- * REAL-TIME * LOCAL AREA NETWORKS
- * DEC PDP * MICROPROCESSORS
- * FORTRAN * BASIC * PASCAL * MICRO ASSEMBLER

In addition to the above, applicants must exhibit sound written and verbal communication skills.

As part of a closely knit technical team in an Organisation regarded as market leaders in their own particular field, successful applicants will be given complete product software development responsibilities from the outset.

In addition to a highly competitive starting salary and associated International Company benefits, our Client offers the addition of a Company car at the senior level.

For further information please contact **Adrian Hardy** on **01 935 0671** (24 hour answering service) or Ashford, Middx (07842) 46026 (evenings and weekends) or alternatively furnish him with a Curriculum Vitae to the London office quoting reference AH461.

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061-833 0427

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For one of the positions the successful applicant will have a background in any of the following: Systems Programming/Systems Engineering, Systems Support/Operations Support, Assembler Programming and ideally experience in OS, DOS and CM/CMS.

For the other position a sales background is essential (this need not have been in DP), plus a minimum of 1½ years in one of the above functions in an IBM installation.

The Company is willing to consider a negotiable package to suit the right individual, and will of course offer full training in their products, both in Europe and the USA.

For further information please write to Dalroth and Partners, 4 Half Moon Street, London W1Y 7RA, quoting ref. 8948, or telephone Jenny Dalrymple-Hay, daytime 01-493 2847; evenings Beaconsfield (04948) 4579, or Graham Cottingham, daytime Reading (0734) 478335, evenings (0734) 474129.

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N.E. MIDDLESEX to £10,500
A manufacturing company, leader in its field, is seeking a Senior Programmer to head a small team involved in Materials and Production Control systems development. A strong ICL COBOL background is required with experience of 2800 DME or VME being particularly relevant. If you already are leading a team, or feel that you are ready to take the responsibility, this is an excellent opportunity to progress.

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Tel: 010 322 377 4193

ANALYSTS

CITY
A leading City Insurance Company, with a heavy commitment to the development of New Systems, urgently requires two Systems Analysts to join their team. At least one year's formal analytical experience is necessary for the Junior position and three years' for the Senior, a COBOL programming background gained in a ICL environment is required in both instances. These are excellent opportunities offering wide scope for personal advancement, and attracting a full range of benefits including Mortgage facility to complement the basic salary.

ANALYST PROGRAMMER

CITY c. £9,500
Our client, a City based commodities House, currently utilising DEC equipment working under RSTS/E requires a further Analyst/Programmer with sound experience of BASIC and/or BASIC + 2. An applications background involving financial or general commercial work would be advantageous, but is not essential as a good knowledge of the Programming/Software discipline is of prime importance. A Salary commensurate with experience will be paid plus generous Company benefits.

NGH ASSOCIATES

GET TO GRIPS WITH A 38

Our client is a major financial institution based in the City. They currently have an IBM System 34 and will be upgrading to a System 38 in the early part of this year.

At a crucial stage in their development programme they are now looking for two people to supplement their existing development team and become actively involved in a variety of challenging projects.

PROJECT LEADER

Up to £14,000 + Benefits

You must have first rate design skills, a solid background in System 34/38 programming and have experience of running a small development team. Knowledge of financial applications and databases will be an advantage.

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£9-£12,000 + Benefits

You should have at least four years' programming experience with at least 18 months' in the design and specification of systems. A knowledge of RPG II/III is essential.

If you would like to be part of this key development team and are looking for real career potential then ring **NEIL HADFIELD** now on **828 1574/1527**, quoting ref GD24 or fill out the coupon below. All applicants will be treated in the strictest confidence.

NAME: _____
 ADDRESS: _____
 PHONE: _____
 WORK: _____
 PLEASE SEND AN INFORMATION PACKAGE ON YOUR CLIENT TO: _____
 TO: NGH ASSOCIATES, 285 VICTORIA STREET, LONDON SW1E 5NE

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Analysis and Programming - join our project teams working on a variety of applications in our Field Office in Watlington, Oxford, to meet the growth in our communications and data processing, our maintenance installation is being expanded to provide a dual processor ICL 2958 under VME/B and a dual processor ICL 2960 under DME. We plan also to extend considerably our use of mini and microcomputers.

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Carol Carter,
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Tel: 01-398 4101.

MMB

(2534)

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(2018)

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Training will be given at ATEX U.S.A. headquarters. The remuneration package will reflect the working conditions and can be very attractive for the right applicants.

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Telex: 8881447 agru d.

(2407)

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A vacancy exists for a senior operator to run the Fund's DEC2050 computer. The post involves the usual duties including the supervision of a junior and, in addition, operational responsibility for teleconferencing. Applicants should be experienced in TOPS20 operations and with teleconferencing.

Salary range £8,000 to £10,000

For further information and application form write or telephone to Ms. S. M. Hurley, Imperial Cancer Research Fund, Lincoln's Inn Fields, WC2A 0EX, ext. 305.

(2509)

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You will also be required to produce job training programmes for all levels of staff and train departmental instructors in instructional techniques.

The position carries a salary of around £8,000 pa, generous company benefits and first-class career prospects.

If you are aged twenty-five plus and are a qualified Training Officer with experience in clerical, secretarial and systems training - preferably familiar with typewriter keyboards - a move to Tesco now could be a real career boost.

To find out more, write with full career details to: David Stockwell, Personnel and Training Manager, Tesco Stores Limited, Tesco House, Delamare Road, Cheshunt, Herts EN8 9SL. Telephone: Waltham Cross 32222.

TODAYS TESCO

PSION

MICROCOMPUTER PROGRAMMERS & ANALYSTS

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SENIOR ANALYST/PROGRAMMER to join the above installation as ASSISTANT to the SYSTEMS MANAGER. The ideal candidate should already be using RPG III but if a really good knowledge of RPG III is held our client is prepared to train the selected applicant in RPG III.
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